TECHNOLOGY DEPT

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DETROIT

Air Conditioning & REFRIGERATION NEWS

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

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REA Abandons Plan For Cheap Farmer's Model

Stewart-Warner's Offer To Make the Unit Is Withdrawn

WASHINGTON, D. C.—Cancellation of the plan of the Rural Electrification Administration for a specially designed lower-than-the-market price electric refrigerator to be distributed to farm families by REA-financed systems, was announced last week.

The idea was dropped, says the REA, for the reason that "Because of difficulties encountered in coordinating its ordinary distribution practices with the plan arranged for distributing the proposed REA Co-op model electric refrigerators, the Stewart-Warner Corp. has withdrawn its offer to produce these new models for members of REA-financed cooperatives."

Under the plan Stewart-Warner was to supply an initial order of 25,000 units in two sizes, a 6.5-cu. ft. model and an 8.4-cu. ft. model, the former to sell for $90 and the latter for $110. The local REA systems

(Concluded on Page 2, Column 4)

Phila. Sales Rise 29% as Average Price Climbs

PHILADELPHIA—Dealer sales of household electric refrigerators in the Philadelphia territory increased 29% in the first three months of this year, totaling 19,850 units as compared with 15,325 in the same period of 1940, according to reports to the Electrical Association of Philadelphia.

Average price of unit sales for the first quarter this year was $152, a

(Concluded on Page 35, Column 4)

Dan Wile To Manage Kellogg Factory

ROCHESTER, N. Y.—Daniel D. Wile, formerly chief engineer of the refrigeration department of Savage Arms Corp., has been appointed general factory manager of the Kellogg division of American Brake Shoe & Foundry Co. here. The Kellogg division manufactures refrigeration compressors and air compressors.

(Concluded on Page 4, Column 4)

Edwina Nolan Married To Walter Daily of Durstine Agency

NEW YORK CITY—Walter Daily of the Roy Durstine advertising agency (handles the Crosley account) and Edwina Nolan, home service director of the General Electric Co., were married here April 26.

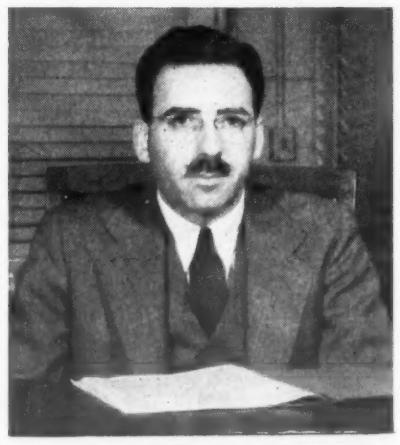
They met while Mr. Daily was advertising and sales promotion manager of the General Electric refrigeration department, then located in Cleveland, and Miss Nolan was home service director of the same department.

The new Mrs. Daily, it is understood, will continue her work in directing the G-E program of helping purchasers use their G-E appliances to better advantage.

Men In the News

E. A. VALLEE
Automatic Products Co. vice president is re-elected president of Rema.

GEORGE L. BRUNNER, JR.
New executive vice president of Brunner Mfg. Co.



D. D. WILE
General factory manager of Kellogg division, American Brake Shoe & Foundry Co.

England Depending On Refrigeration To Help Win War

By George F. Taubeneck

NEW YORK CITY—Refrigeration is deemed an essential industry in war-wracked England, C. B. Morrison, York's representative in England, told the New York section of the A.S.R.E. May 2.

More than 60 new cold storage warehouses have been put up in the bomb-splattered Little Isle since the war began, and more are planned, he reported.

Furthermore, preliminary experimentation with the air conditioning of air-raid shelters has been most successful; and there is strong indication that heavy imports of air conditioning equipment for such pur-

(Concluded on Page 4, Column 5)

Contractors Form New Association In Detroit Area

DETROIT—The Refrigeration Contractors Association of Detroit was organized here last week for the purpose of dealing with problems common to firms that are licensed and bonded by the city of Detroit to sell, install, and service refrigeration equipment. As all air conditioning dealers and contractors hold a license to handle refrigeration, with the exception of those handling small packaged equipment, the association will be open to air conditioning contractors, commercial refrigeration firms, and independent service men.

At the organization meeting Jack Duncan of Duncan & MacNicol was elected president of the new association. Ben G. Hyatt of Copeland Authorized Refrigeration Service is vice president; James E. Perry of James E. Perry Co., secretary; and William Euth of Euth-Lambrecht Co., treasurer.

Harry Heberlee of Heberlee Ice Machine Co. was elected chairman of the board of directors of the Refrigeration Contractors Association. Directors serving with Mr. Heberlee are R. Whitsett of the Gratiot Fixture & Supply Co.; William Mercier of Mercier & Clark; Chris Milazzo of Automatic Refrigeration Service; and M. E. Burnett of Westerlin & Campbell Co.

Under the association set up, each firm holding a license to install and service refrigeration in Detroit may hold a membership in the association,

(Concluded on Page 4, Column 4)

Geo. L. Brunner, Jr. Named Vice President

UTICA, N. Y.—George L. Brunner, Jr., son of the president of Brunner Mfg. Co., has been elected executive vice president of the company by the organization's directors. In his new position, he will be in charge of the general operation of the company.

Mr. Brunner's advancement was announced just as work was being started on the company's new plant expansion program.

While attending Holy Cross College, where he majored in physics and mathematics, young Mr. Brunner spent his vacations working in his father's plant. Since his graduation in 1936 he has spent his full time with the company, being active in all departments.

Rema Re-elects Officers, Starts Drive For 'Bigger & Better' Show

Featured This Week

Editorial features stressed in this issue are principles of good and profitable operation for refrigeration service firms, with special emphasis on the sale of replacement parts by service companies.

The replacement market has a natural growth because of the simple fact that equipment wears out with age. But, it is a market that requires **selling** because of the desire of users to have the equipment repaired rather than replaced.

R.S.E.S. and N.R.S.J.A. Committee Reports Disclose Problems

FRENCH LICK, Ind.—Re-electing the officers that had led the association through such a successful year, members of the Refrigeration Equipment Manufacturers Association met here last Wednesday through Friday to conduct their annual business meeting and to make the opening moves towards making the 1942 All-Industry Refrigeration & Air Conditioning Exhibition, to be held next January in Chicago, the best in the industry's history.

In two of the most significant pieces of business at the meeting the members, in a more or less informal vote, seem to have killed the idea of holding a "sub show" midway through the year at some point other than that used for the All-Industry Show; and set the place for the fall Rema meeting at White Sulphur Springs, W. Va., sometime in October.

C. H. Benson, advertising manager, Imperial Brass Mfg. Co., and new chairman of the All-Industry Show committee, made a report showing that his committee was well under way with a program for boosting the size of the show and the attendance, and indicated that a more intensive promotion campaign stretched over a longer period of the year would be used to stir up interest in the 1942 exhibition.

He urged the members to begin early the use of their booth numbers in their advertising and promotion, explained the change in the booth layout to provide better show spaces for more exhibitors, and asked exhibitors with large and bulky merchandise to take spaces next to the walls.

Officers re-elected were E. A. Vallee, Automatic Products Co., president; W. C. Allen, Modern Equipment Corp., vice president; R. H. Luscombe, Penn Electric Switch Co., treasurer; and R. M. McClure, executive secretary. A new officer elected was John Wyllie, Jr., Temprite Products Corp., to the position of secretary, a job formerly combined with the treasurership.

New directors elected included J. A. Strachan, sales manager, Kerotest Mfg. Co.; Mr. Luscombe, and Mr. Wyllie.

Reporting on the meeting of the Rema's R.S.E.S. relations committee, which had just met with the manufacturer's relations committee of the service engineer's society the day previously, Mr. Wyllie stated that Rema had made the same type of

(Concluded on Page 6, Column 1)

Commercial Sales Up 40% In March

DETROIT—World shipments of commercial refrigeration equipment by members of National Electrical Manufacturers Association reached a volume of $3,722,250 during March, an increase of more than 40% over the $2,512,865 total for that month last year.

Commercial condensing unit shipments also were up more than 35%

(Concluded on Page 35, Column 3)

York Spends $54,345 In 1940 To Top All Cooling Advertisers

DETROIT — York Ice Machinery Corp. led other manufacturers of air conditioning equipment in expenditures for national magazine advertising on air conditioning apparatus with a cooling function in 1940, according to a survey recently completed.

York's expenditures totaled $54,345. Carrier Corp. spent a total of $49,995, of which about $38,000 was on cooling systems.

General Electric's air conditioning department spent a total of $101,187 in magazine advertising, but of this total only $14,207 could be said to have been spent directly on cooling devices.

Replacement Selling Vs. Straight Servicing - - The Real Figures

By Henry Knowlton

MILWAUKEE — Independent refrigeration service men must sell replacement parts every week in the year in order to make a good living.

That's the opinion of Henry Felker, a veteran of the refrigeration service business who joined the Refrigeration Specialty Co. jobbing organization about five years ago, who has the figures to give an indisputable "dollars and cents" picture of why the service man must sell replacement parts.

According to Mr. Felker, refrigeration service men have a hard time making a bare living selling labor alone. As an example of this situation, he assumes that an independent service man, working alone, and driving his own car, makes four calls a day, at $2 a call. This is a total of $8 a day, or $40 for a five-day week. If the $40 could be considered as a net weekly wage, everything would be fine—but unfortunately, this is not the case, Mr. Felker has found.

In making the calls, the service man drives his car at least 30 miles on an average day. At 5 cents per mile, this amounts to $1.50 a day in car expense. Men who have little or no experience in operating automobiles commercially will consider this figure high. If, however, all automobile expenses are taken into consideration, including gasoline, oil, repairs, depreciation, washing, greasing, storage, fire and theft insurance, collision insurance, new tires, and liability insurance, the overall cost will be close to 5 cents a mile.

Thus $1.50 per day must be immediately subtracted from earnings of $8 per day, making the net, so far, $6.50 per day.

Even the small operator will have a capital investment of about $100 in tools, and will always have perhaps $500 in outstanding accounts. This constitutes an investment of $600, which, according to good business practice should be turned over at

(Concluded on Page 2, Column 1)

Wholesalers To Discuss Appliance Problems

HOT SPRINGS, Va.—Matters of current importance affecting the distribution of major appliances will occupy a considerable portion of the discussion time at the thirty-third annual convention of the National Electrical Wholesalers Association to be held at the Homestead here May 19 to 22.

The formal session on appliances will take place at 10:30 a.m. on May 19 in Tower Lobby No. 1. All of the association's major appliance committees will meet jointly at this time, and a number of major appliance distributors will sit in on the meeting as guests.

The association's managing director, secretary, and counsel will address this meeting on subjects covering the group's major appliance activities, pertinent legislative matters, and national defense developments.

Presenting: Figures on Why Servicemen Can Profit More Selling Replacements

(Concluded from Page 1, Column 4)

least six times per year, at 6% interest. This amounts to a total of 36% of $600, or $216 per year, or a little over $4 per week.

Thus if the service man makes $8 per day less his car expense of $1.50 per day—or $6.50 per day the total is $32.50 per week. If he then subtracts $4 per week, interest on his business investment, the balance of $28.50 per week could hardly be considered a good return for an individual in business for himself. According to Mr. Felker, many service men make only "wages" of from $25 to $30 a week, because they overlook the profits latent in selling replacement parts.

This situation arises from the fact that many service men believe that if they can keep the customer's old machine going it will make "work" for them. According to Mr. Felker, keeping an old machine running for an unnaturally long time will not make profitable work for the service man, as illustrated above, and further, will result first in a dissatisfied customer, and eventually result in the loss of the customer himself.

Because the customer is usually "at the mercy of the service man," as Mr. Felker aptly puts it, the service man should have little difficulty in selling $50 worth of replacement parts a week. This will result in a profit of $25—which, when added to the $28.50 earned from labor makes a total of $53.50—or a respectable weekly wage.

Then if the service man can sell one commercial compressor a month, which should not be too difficult—for say $150, he will make at least $50 on the transaction and raise his weekly take by $12.50 to a total of $66 per week.

Mr. Felker points out that when the service man sells replacement parts to a customer he gives that customer the benefit of factory production methods on refrigeration equipment—in other words, the customer gets more for his dollar than when he pays for "tinkering" with the machine in the field.

To prove his point, Mr. Felker uses a simple pressure control as an example. The control costs approximately $10 list—the service man makes $5 on the sale. If the old control is left in use, it will not take many service calls to run up $10 or $15 worth of service on the control, and the customer still has a potential headache on his hands. The best thing to do, Mr. Felker has found, is to replace the faulty control in the first place, and not keep trying to fix it from time to time. The result of fooling around with a situation of this kind is usually spoiled food, and an irate customer.

Mr. Felker likes to tell the story about a service man of his acquaintance, whom he characterized as the "fixing type." This man was a first class mechanic, and prided himself on the fact that he could "fix anything," and seldom purchased any replacement parts for re-sale. The service man's best customer was a Milwaukee building and loan association that operated a large group of apartment houses.

After "fixing everything" for several years, the service man suddenly lost the account. The new service man taking the building and loan account over was not such a crack mechanic, but according to Mr. Felker, he was "sales minded." The first thing the new man did was to "sell" the building and loan association on the desirability and economy of putting new refrigerating machines on all their apartment properties.

As a result, the "selling type" service man installed between 30 and 40 new apartment house compressors last year, at a profit of approximately $100 on each job. The units are giving good service, and the man is now in no danger of losing his best customer to a competitor. The sales minded service man made between $3,000 and $4,000 on the account in a single year—and had a happy customer as a result.

Mr. Felker thinks service men who resent the sale of special refrigerating equipment by national selling organizations are making a fundamental mistake. Mr. Felker feels that this is the wrong attitude, as in most cases the sale of additional equipment will result in more business for the service man in the long run.

Mr. Felker has learned that the service man must sell replacement parts to make a living; that he must sell high and low side equipment to operate at a good profit, and that he must encourage the sale and installation of all kinds of refrigeration equipment, to be an important factor in a growing industry.

A Refrigeration & Air Conditioning Organization

The Air Conditioning Co. of Houston, Texas, distributing a wide variety of refrigeration and air conditioning lines, recently moved into this new building especially constructed for the firm. Lineup of the staff shows the size of organization needed to operate a complete dealership of this type.

• • •

Magazine Advertising On Air Conditioning

CARRIER	
Carrier Air Conditioning	
Time	$ 19,800
Business Week	8,235
Total	**$ 28,035**
Carrier Automatic Heating and Air Conditioning	
House Beautiful	$ 5,100
Time	2,475
Total	**$ 7,575**
Carrier Humidifier	
Time	$ 2,475
Business Week	915
House Beautiful	425
House & Garden	400
Total	**$ 4,215**
Carrier Room Ventilator and Room Weathermaker	
Time	$ 7,425
Business Week	1,830
Total	**$ 9,255**
Carrier Unit Heaters and Heat Diffusers	
Business Week	$ 915
Total	**$ 915**
Grand Total	**$ 49,995**
GENERAL ELECTRIC	
G-E Air Conditioning and Heating Systems	
The American Home	$ 45,880
Better Homes & Gardens	41,100
Total	**$ 86,980**
G-E Room Cooler	
Time	$ 14,207
Total	**$ 14,207**
Grand Total	**$101,187**
HOLLAND	
Holland Automatic Furnace Air Conditioner	
Time	$ 5,250
Better Homes & Gardens	3,200
The American Home	2,765
Total	**$ 11,215**
WESTINGHOUSE	
Westinghouse Mobilaire	
Time	$ 14,000
Fortune	2,800
Total	**$ 16,800**
YORK	
York Air Conditioning	
Time	$ 19,800
Saturday Evening Post	16,000
Fortune	9,800
Business Week	7,320
Newsweek	1,425
Total	**$ 54,345**

Houston Commercial Dealer Expands

HOUSTON, Tex.—The Air Conditioning Co., distributor of a variety of air conditioning and commercial refrigeration equipment, has recently moved into its new business home here. The building, constructed especially for the company, is completely air conditioned.

Adequate showroom space, warehousing, and space for the complete sheet-metal department which the company maintains were planned in advance to assure more efficient and economical operation, reports James A. Walsh, president of the company.

Air Conditioning Co. is distributor for General Electric air conditioning, heating, and cooling equipment, and G-E commercial refrigeration; McCray and Frick products; Deepfreeze storage units; Hunter fans, and Johns-Manville insulation.

Before moving into its new air conditioned building, the company maintained two locations, which necessitated the separation of the air conditioning and the commercial refrigeration divisions. Moving into the new building brought all of the operations of the company under one roof.

The Air Conditioning Co. was organized five years ago with a staff of five employes. Today the company has a staff of 36, the personnel being enlarged as new lines were added. The company maintains a staff of registered engineers, and a 24-hour service department.

A. J. Mitchell, for the past 10 years associated with the air conditioning industry in Houston, is vice president of the company. R. W. Kurtz, registered engineer, is chief engineer and secretary; E. B. Cobb, manager of the commercial refrigeration department; and J. C. Rose, manager of architects and contractors division.

REA Abandons Its Plans To Give Power Users Cheap Refrigerator

(Concluded from Page 1, Column 1)

were to finance sales to farmers over periods of as long as five years.

REA Administrator Harry Slattery, in announcing the abandonment of the plan, declared:

"In view of the fact that the current refrigerator season is already well advanced, it appears inexpedient at the present time to attempt further to effect general arrangements for making refrigeration facilities available to the cooperative members on terms justified by the mass market, but to leave such arrangements to each particular cooperative.

"While this precludes the distribution of the proposed REA Co-op model refrigerators at this time, REA will prosecute its new program of refrigerator financing by extending the procedures already proved successful in group-purchasing arrangements.

(And then this remarkable statement about the REA program.)

"The REA refrigerator-financing program is based upon two principles: (1) That the REA lines open up a vast new market, which would not exist except for the government rural electrification program and which deserves and must have special mass-market treatment. (2) That REA has an obligation to use its influence to the advantage of the farmer-purchaser."

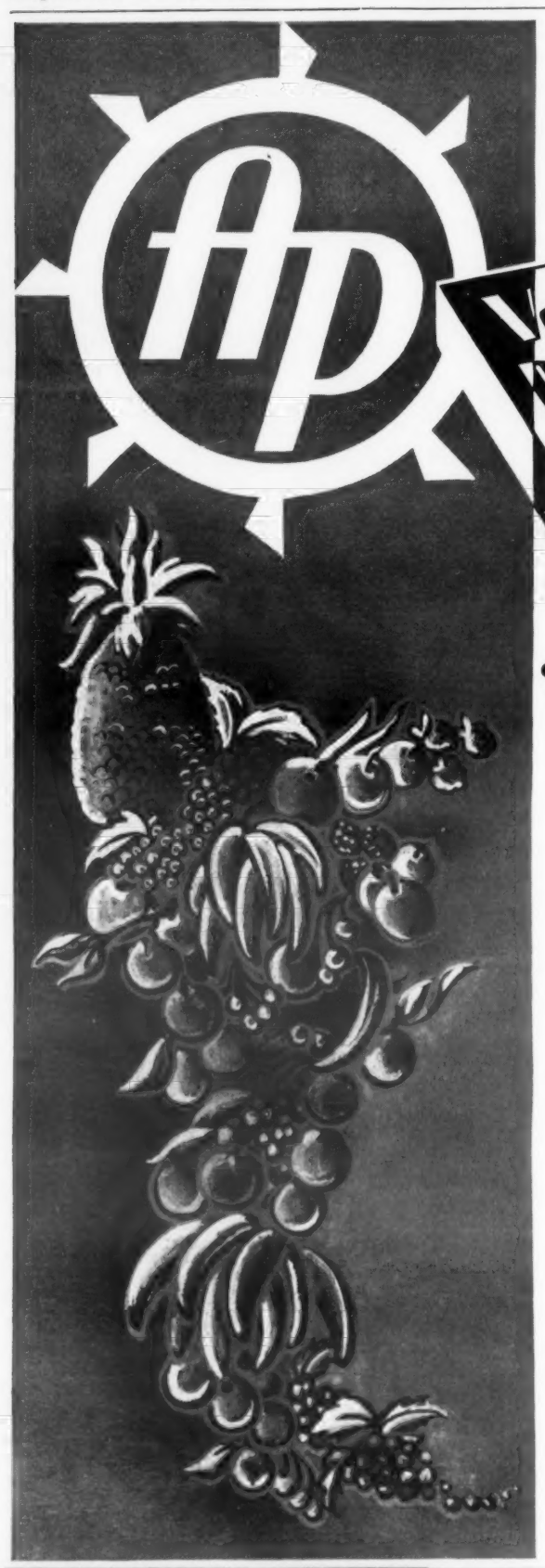
American Plumbing Code Is Started

NEW YORK CITY—The formation of an American Standard Plumbing Code was begun here last month by a committee representing 21 national organizations. The committee is to be known as the "American Standards Association Committee on Minimum Requirements of Plumbing." Efforts of the group will be to develop a code which will be universally accepted.

The group is made up of representatives of the U. S. Public Health Service, the Conference of State Sanitary Engineers, the National Bureau of Standards, State and Provincial Health Authorities of North America, and the U. S. Federal Works Agency.

Interests of the owner and building designer are represented by the National Association of Building Owners and Managers, Building Officials Conference of America, American Institute of Architects, National Association of Real Estate Boards, American Hotel Association, American Hospital Association, and American Societies of Civil and Mechanical Engineers.

The manufacturers of the materials, valves, fittings, fixtures, and equipment used in plumbing installations are adequately represented through the official representatives of their various trade associations.



*Storage of Perishables . .

From tropical plantations . . . from fruit orchards . . . from vegetable farms located hundreds and even thousands of miles away—come the fruits and vegetables served on your dinner table today . . . Fresh, delicious, healthful food you take for granted.

It's a miracle of modern Refrigeration that makes this possible. And guarding the efficiency of this Refrigeration is an army of small valves—A-P DEPENDABLE VALVES . . . Providing accurate Refrigeration Control for safe transportation and storage of these perishables. *It's a great RESPONSIBILITY, a task that A-P Valves handle with notable success.*

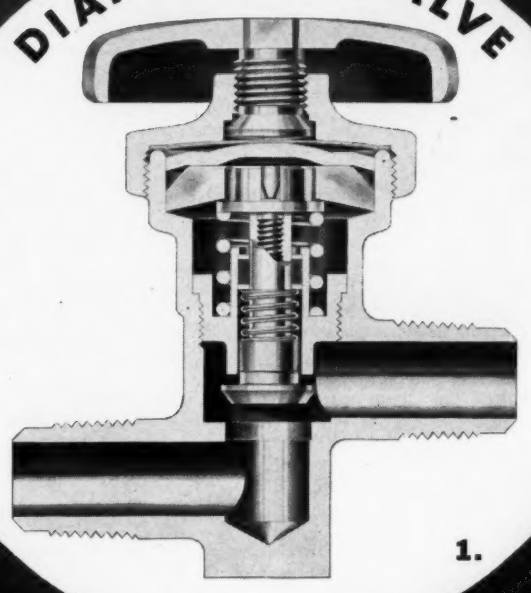
This DEPENDABILITY, the result of mechanical and engineering perfection, is YOURS to use for your own profit, and the satisfaction of your customers. Prove the Responsibility of A-P Valves the next time you service or install equipment that guards perishables.

★ *Progressive Service Engineers use and recommend . . . and aggressive Jobbers stock and talk A-P Products*

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY — SECOND STREET
MILWAUKEE WISCONSIN

A-P CONTROLS ARE DEPENDABLE

DIAPHRAGM VALVE



1.

1. Our TRIPLE-SEAL Diaphragm Valve has positive sealing at three essential points. The Diaphragm never travels below center, thus greatly prolonging the service life of the valve. A single turn only is necessary to open or close.

FILTER

EXCEPTIONALLY COMPLETE RANGE

WRITE FOR LITERATURE

2.

2. Mueller Brass Co. Strainers and Filters are manufactured throughout with non-ferrous metal. All Tubular types are fabricated from brass or copper pipe with forged brass outlets soldered in place. All Filters and Strainers are designed to insure efficient passage to the maximum refrigerant volume that is generally used in any particular size refrigerant line.

FLARED FITTINGS

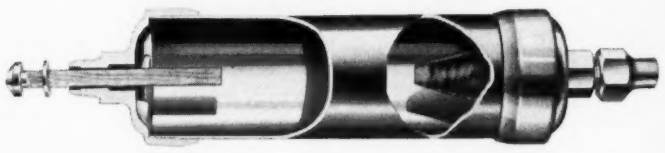
MADE FROM BRASS FORGINGS OR SPECIALLY PROCESSED BRASS ROD

3.

3. We manufacture the most complete line of FLARED FITTINGS obtainable. All male flare threads are protected by heavy caps to prevent damage from shipping and handling. Tees, Nuts and Elbows are made of forged brass. Union couplings, etc., are manufactured from specially processed brass rod. Seepage is eliminated.

DEHYDRATOR

A NEW DEHYDRATOR THAT MAY BE READILY REFILLED



4.

TO REFILL SIMPLY REMOVE FLARE TIP AND INLET SCREEN, EMPTY THE WORN OUT DRYING AGENT —AND RECHARGE

4. M. B. CO. DEHYDRATORS are provided with a CONE SCREEN filled with pure wool which directs any fine particles of the drying agent to the outside of the base of the cone. Dust-like particles penetrating the screen are trapped in the wool filler. The center remains free for the passage of the refrigerant.

WROUGHT FITTINGS

FOR LEAK-PROOF JOINTS

5.

5. The pipe sockets of Streamline Wrought Copper Fittings are machined for close capillary tolerance; they are of ample length and provide adequate support for pipe lines. Internal construction of Fittings provides extra strength where it is most needed. Pipe stops are positive and at the right angles to the fitting. Tees and Elbows are protected with heavy paper board caps.

ORDER THROUGH YOUR JOBBER

MUELLER BRASS CO. PORT HURON MICH.

TIME TESTED VALUES, FITTINGS AND ACCESSORIES for MECHANICAL REFRIGERATION

Your jobber deserves your patronage. He stocks thousands of products of many manufacturers from all parts of the country. He carries them under one roof so that you can get what you want in a hurry, and at the right price. He extends you reasonable credit and serves you in many different ways.

●

UNDIVIDED RESPONSIBILITY

For best results, all of the installation material from the cooling unit to the condensing unit should be Mueller Brass Co. dependable products. Look for the Mueller Brass Co. trade-mark. It represents time-tested quality goods, and—one of the most complete lines on the market.

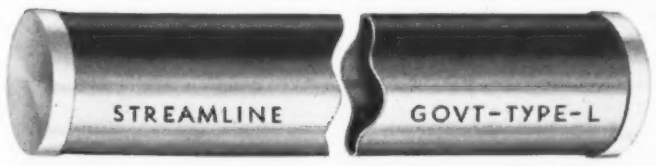
6. Our method of sealing carefully cleaned and dried copper tubing with a soldered copper cap is considered superior to any other method. The cap is substantial enough to resist fracture, damage or accidental tearing off, unless subjected to extraordinary abuse. It amply protects the ends of the pipe and preserves its capillary tolerance.

7. The LITTLE GIANT PURGER furnishes positive indication when purging is necessary—the sight glass gives visible evidence of non-condensible gasses in the system. The air in the system is completely separated from the refrigerant before the purge valve is opened. No need to check pressures or temperatures; no need to shut down the system. The LITTLE GIANT will pay for itself many times over.

8. Our improved HEAT EXCHANGER is intended for use in ice cream cabinet work and in similar installations where a small, compact, yet very efficient heat exchanger is required. It is designed to provide maximum heat exchanging capacity where available space is at a premium.

SOLDER-SEALED COPPER TUBING

The cap can easily be removed when installing by heating it slightly with the flame of a blow torch or gas tip.



The cap cannot be accidentally left on the pipe when installation is made—and it may be used again to reseal cut lengths of pipe.

6.

LITTLE GIANT PURGER

NO GUESSING

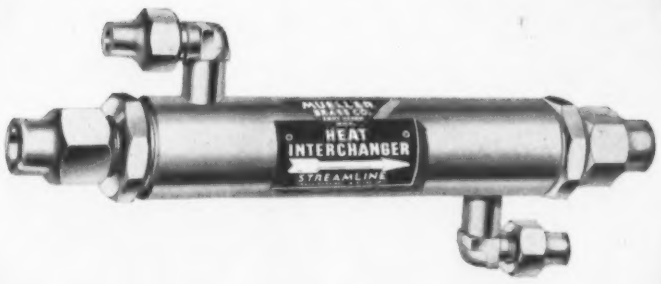
NO REFRIGERANT LOSS

SIMPLE TO OPERATE

SAVING IN POWER COSTS

7.

HEAT EXCHANGER



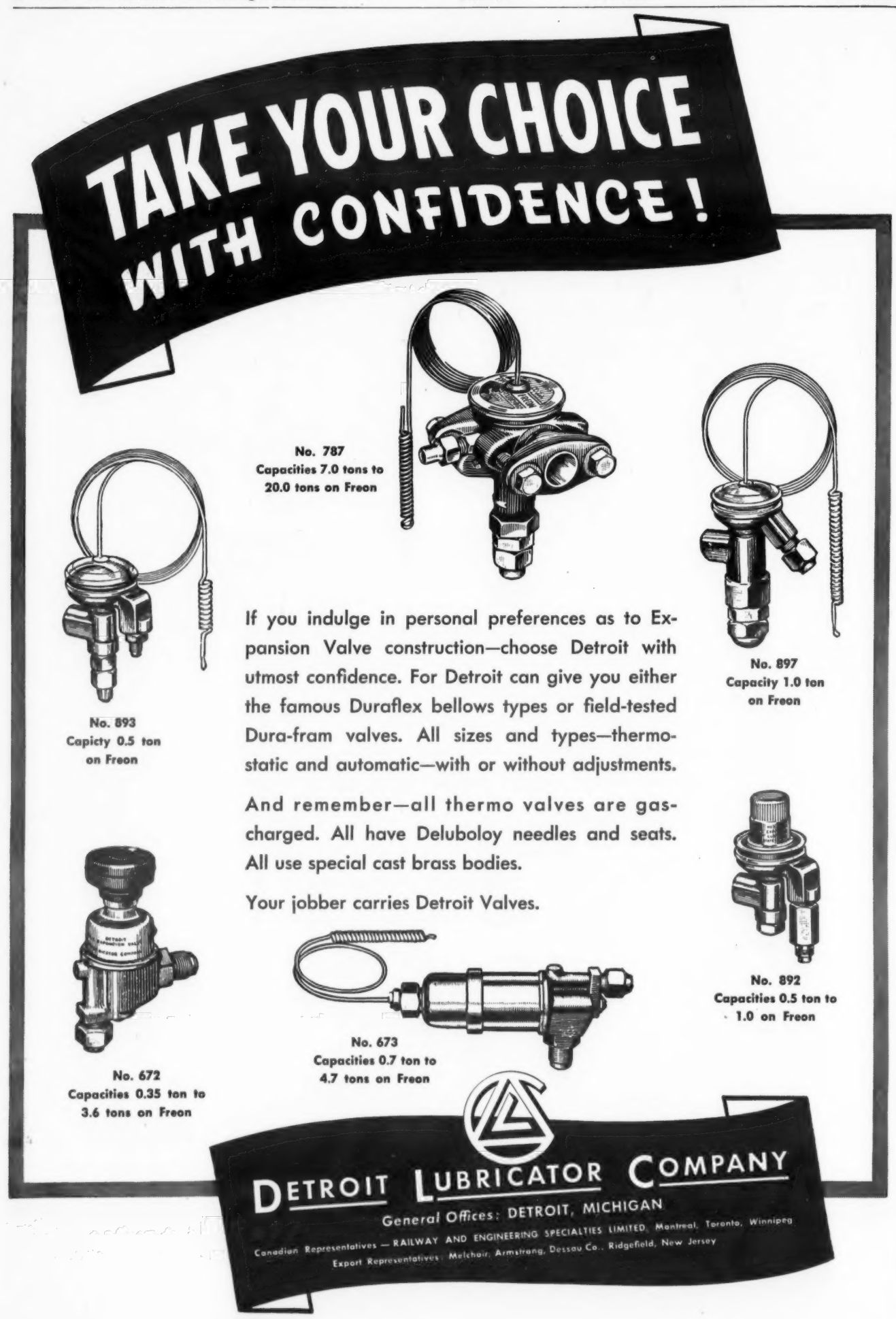
Flare Nuts and Seals are furnished with Exchanger, thus keeping units dry and clean.

8.

Nema Firms Sell 14,887 Condensing Units In March

The following report of commercial refrigerating equipment sales for March, 1941 was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following 15 companies: Baker Ice Machine Co., Inc., Brunner Mfg. Co., Carrier Corp., Crosley Corp., Frigidaire Div. General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Universal Cooler Corp., Vilter Mfg. Co., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR MARCH, 1941	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value	Total World Quantity	Total World Value
1. Bottle Water Coolers—Complete	408	$ 28,478	....	....	....	....	408	$ 28,478
2. Pressure Water Coolers—Complete	3,209	318,410	30	$ 2,697	69	$ 8,064	3,308	329,171
3. Water Coolers—Low Side Only	87	4,726	3	154	1	68	91	4,948
4. Ice Cream Cabinets—Complete	6,678	1,005,030	88	14,184	65	8,321	6,831	1,027,535
5. Ice Cream Holding Cabinets Only (Remote)	335	52,445	....	....	3	678	338	53,123
6. Bottle Beverage Coolers—Complete	8,165	808,447	131	12,124	52	6,851	8,348	827,422
7. Beverage Coolers (No High Sides)	12	1,464	....	....	....	....	12	1,464
8. Milk Coolers—Complete	6	1,362	....	....	1	150	7	1,512
9. Milk Cooling Cabinets (No High Sides)	....	....	....	....	....	....	....	....
10. Commercial Evaporators—Not Reported Above (Including Cold Diffusers, Brine, and Other Spray Evaporators, Etc.)	3,179	124,201	318	11,672	217	20,855	3,714	156,728
11. Condensing Units Less Than ⅓ Hp	5,162	203,871	55	2,418	394	18,504	5,611	224,793
12. Condensing Units—⅓ Hp	4,152	232,427	35	2,262	111	7,095	4,298	241,784
13. Condensing Units—½ Hp	1,684	139,787	53	4,661	117	10,264	1,854	154,712
14. Condensing Units—¾ Hp	1,140	123,593	30	3,503	40	4,436	1,210	131,532
15. Condensing Units—1 Hp	652	87,157	23	3,214	60	8,224	735	98,595
16. Condensing Units—1½ Hp	376	64,663	12	2,146	65	10,769	453	77,578
17. Condensing Units—2 Hp	200	41,152	4	984	36	7,952	240	50,088
18. Condensing Units—3 Hp	93	23,787	1	160	46	9,017	140	32,964
19. Condensing Units—5 Hp	65	24,606	....	....	10	3,470	75	28,076
20. Condensing Units—7½ Hp	200	124,482	....	....	3	1,996	203	126,478
21. Condensing Units—10 Hp	9	5,107	1	622	....	....	10	5,729
22. Condensing Units—15 Hp	9	6,710	....	....	1	889	10	7,599
23. Condensing Units—20 Hp	12	11,654	....	....	....	....	12	11,654
24. Condensing Units—25 Hp	2	2,544	....	....	....	....	2	2,544
25. Condensing Units—30 Hp	23	65,102	....	....	....	....	23	65,102
26. Condensing Units—40 Hp	5	8,184	....	....	....	....	5	8,184
27. Condensing Units—50 Hp	6	10,492	....	....	....	....	6	10,492
28. Total—All Condensing Units (11 to 27)	13,790	1,175,318	214	19,970	883	82,616	14,887	1,277,904
29a. Condensers—Sold Separately Shell & Coil or Shell & Tube	6	4,570	....	....	1	277	7	4,847
29b. Evaporative Type	10	7,943	....	....	6	1,175	16	9,118
30. Total—All Commercial Refrigeration	....	$3,532,394	....	$60,801	....	$129,055	....	$3,722,250


TAKE YOUR CHOICE
WITH CONFIDENCE!
No. 787
Capacities 7.0 tons to
20.0 tons on Freon
No. 893
Capicty 0.5 ton
on Freon
No. 897
Capacity 1.0 ton
on Freon
If you indulge in personal preferences as to Expansion Valve construction—choose Detroit with utmost confidence. For Detroit can give you either the famous Duraflex bellows types or field-tested Dura-fram valves. All sizes and types—thermostatic and automatic—with or without adjustments.
And remember—all thermo valves are gas-charged. All have Deluboloy needles and seats. All use special cast brass bodies.
Your jobber carries Detroit Valves.
No. 892
Capacities 0.5 ton to
1.0 on Freon
No. 672
Capacities 0.35 ton to
3.6 tons on Freon
No. 673
Capacities 0.7 ton to
4.7 tons on Freon
DETROIT LUBRICATOR COMPANY
General Offices: DETROIT, MICHIGAN
Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg
Export Representatives: Melchoir, Armstrong, Dessau Co., Ridgefield, New Jersey

Flying Businessman

Jerry Tyler, president of Tyler Fixture Corp., who flies his own airplane on business trips as well as on pleasure flights, stands beside his new Fairchild plane before taking off on a flight. The name of the ship "Havasu" is Indian for "blue sky."

Detroit Contractors, Refrigeration Firm Small & Large, Join A New Association

(Concluded from Page 1, Column 3)

and shall have one vote. One individual from the firm shall represent that membership in the affairs of the association, but others from the member firms may attend meetings and take part in the discussions.

Commenting on the association set-up, Jack Duncan pointed out that the group was open to everyone engaged in refrigeration, including all independent service men who work at the trade, and do not employ any help.

"We want every refrigeration man to become a part of the new organization," Mr. Duncan said, "as we feel that members of the trade should work together as an industry. The Refrigeration Contractors Association of Detroit will give refrigeration men a common meeting ground, where they can get together and discuss their problems. The independent service man will have the same voice in the affairs of the association as the large refrigeration or air conditioning firm that employs a number of men."

Mr. Heberlee, chairman of the association's board of directors, stated that approximately 50 firms had signed up as members of the new association and that many others had expressed interest in the group. Certificates of membership are being issued, and under the by-laws of the association these certificates shall be prominently displayed in the member firm or individual's place of business.

Member firms in the Air Conditioning Association of Michigan doing refrigeration work have all indicated their interest in the new association, according to Robert Gordon of American Refrigerating Co., president of the air conditioning group. "We will do anything possible to promote the best interests of the refrigeration industry in Detroit," Mr. Gordon said, "and are glad to see the new organization established."

President Duncan of the Refrigeration Contractors Association of Detroit has announced that the next meeting of the organization's membership will be held Wednesday evening, May 21, at 2745 Grand River Ave., Detroit.

Dan Wile Is Factory Manager For Kellogg

(Concluded from Page 1, Column 1)

Before joining the Savage organization late in 1937, Mr. Wile was chief engineer of the refrigeration and air conditioning division of Detroit Lubricator Co., with which company he had been associated since 1927. Prior to that time he had been employed by American Radiator Co. in its research engineering department and accessories laboratory.

A member of the American Society of Refrigerating Engineers, Mr. Wile played an active part in the activities of the Detroit chapter of this organization, once serving as vice chairman. He also was a member of the Code Committee for the City of Detroit.

Mr. Wile is widely known among refrigeration engineers and service men for his studies of refrigerator design and service.

Executive Reports On Great Britain

(Concluded from Page 1, Column 2)

poses may be made from the U.S.A.

Following the demand of his audience, Mr. Morrison spent much time talking about "what it's like to live in England just now."

Labor is cooperating fully with management and the government, he reported. Turnover is infinitesimal. All hiring and firing is done through a central Labor Exchange.

Price stabilization on all items has been effected, at an average of 25% higher than prices ran a year ago. Income taxes are terrific, running from 50% to 92½% of reported incomes. Sales taxes affect all articles except foods. Everything not essential to the prosecution of the war has either been limited or restricted.

Many Americans are now stranded in London, Mr. Morrison declared, and their plight is truly sad. Their businesses have been wiped out by the war, but they can't get away from England. They are prohibited by law from traveling on belligerent ships, no neutral ships call at English ports, and their only means of getting back home is by transatlantic plane.

However, the Atlantic Clipper planes are always booked to capacity by international diplomats and returning Wendell Willkies, so that these poor American refugees are doomed to spend their time dodging bombs and writing letters which the Department of State of the U. S. persistently ignores.

Mr. Morrison finally managed to pull some strings and get a seat on a Clipper, however, and arrived over here a few weeks ago.

Portugal, he says, is largely composed of refugees, gamblers, and spies today. Plenty of refugees appear to be well-heeled with freely spent cash, he noted. Germany never attacks the Lisbon-London planes, he observed, despite the fact that both German and English planes use the same landing field at Lisbon.

The battle between the dollar and pound sterling has upset political relations between the United States and Great Britain much more than the average citizen imagines. If political collaboration between the two countries is to be made successful, it is the opinion of Mr. Morrison that the two nations must unite financially, with a common currency.

At the same meeting, W. C. Goodwin of Westinghouse talked about the air conditioning of "blackout" (windowless) plants, with especial emphasis on zoned systems. He predicted that the air conditioning of plants engaged in defense work will lead to a study and eventual adoption of air conditioning by many industries which up till now have not considered it important.

Sales Jump 100% For Alabama Distributor

BIRMINGHAM, Ala. — Household refrigerator, range, and washer business of Alabama Appliance Co., local distributor, so far this year shows an increase of about 100% over sales for the corresponding period of 1940, reports Charles R. Pew, president of the firm.

Copeland

DEPENDABLE Electric REFRIGERATION

MEMO

For Best Results use Genuine Copeland Parts!

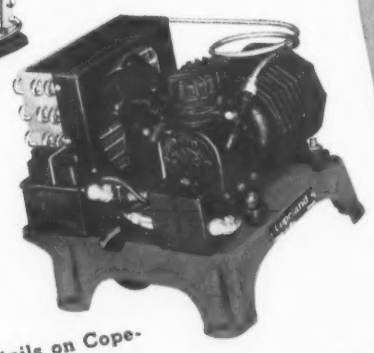
Complete, Prompt Parts Service for any of the hundreds of thousands of Copeland units installed since 1918.

Copeland

COPELAMETIC

the Field-Serviceable Hermetic

Self contained Copelametics with flat pressed steel bases are furnished in 1/6 H.P., 1/5 H.P., 1/4 H.P., 1/3 H.P., and 1/2 H.P. models.



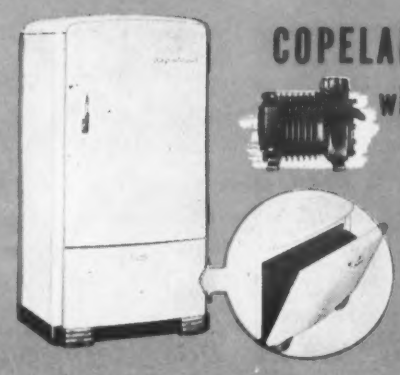
Remote type Copelametics with cast iron bases are available in 1/4 H.P., 1/3 H.P., and 1/2 H.P. models.

Ask for complete details on Copelametic—another of a long list of worthwhile contributions to electric refrigeration, another Copeland triumph.

Every Installation Merits Customer Confidence In You

● Consideration, reward and esteem are yours in more abundance with every Copeland installation. Expertly designed and precision-built Copeland equipment is engineered from start to finish to give greatest satisfaction per dollar of investment.

The modern Copeland line offers a proper size and type unit for every refrigeration or air-conditioning application, 1/6 H.P. to 25 H.P. You are invited to draw upon the experience of Copeland engineers for the solution to your refrigeration problems.



COPELAND '41 HOUSEHOLD LINE with the amazing COPELAMETIC

Quiet. Economical. Dependable. Opens new opportunities for increased business and profits.

ELECTRIC WATER COOLERS

in modern streamline Copeland design, available in both Bottle type and Pressure type.

Pressure Type Cooler with glass filler

Write for the New 1941 Commercial Catalog

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New York Branch, 27-01 Bridge Plaza N., Long Island City, N. Y.

International Division, 60 Wall Tower, New York, N. Y., U. S. A.

E. A. Vallee Outlines Rema's Accomplishments During the Past Year

Committees Report on Relations with Other Factors In the Industry

(Concluded from Page 1, Column 5)

offer that they had the previous year in a bid for R.S.E.S. cooperation in holding its convention at the same time and place as the All-Industry Exhibition.

The R.S.E.S. has not made any definite decision about their next convention, and the committee which heard the offer will have to make its report before any definite action is taken. It is the general feeling, however, that the service engineer's society will cooperate by holding its convention in conjunction with the 1942 Show.

However, the R.S.E.S. has made it known that it will not consider Chicago as a convention site the following year, but has indicated that it may cooperate with Rema if another show site is selected for the 1943 Exhibition.

R.S.E.S. COMPLAINTS HEARD

The R.S.E.S. brought up before Mr. Wyllie's committee the fact that some service men had not received enough attention or adequate information in the booths during the course of the Exhibition, and thus felt that they weren't getting full value out of the Show. It was pointed out that this was probably due to the exhibits being undermanned, and assurances were given that the manufacturers, who were spending a good deal of money in putting an exhibition in the Show, would do everything they could to make the best use of the exhibits.

The R.S.E.S. committee reported that they were finding the service man becoming more sales minded daily, Mr. Wyllie stated, and requested that more information be given to service engineers that would help them to sell and apply the manufacturer's products.

In this connection Mr. Wyllie suggested the appointment by Rema of an educational committee which would get together information of a general nature on various classes of products which would help the service man to do a better selling job.

In the report of the National Refrigeration Supply Jobbers Association, presented by J. S. Forbes, Superior Valve & Fittings Co., it was brought out that the jobbers were considerably perturbed by the appearance of catalogs issued by such firms as brewery equipment houses, and other supply houses not directly connected with the refrigeration trade, who nevertheless were offering refrigeration supply items at trade discounts.

It was explained that such firms were offering refrigeration items at cost to customers in order to sell their own goods.

While it was agreed that the association could take no action on such a matter the jobbers committee had felt that the matter should be brought up before the group so that the individual members would be fully aware of what was going on.

Robert LeBaron, Virginia Smelting Co., presented the report of the standards committee, which recommended that its activities be limited to the development of technical standards for products along the course of a program recommended by the membership.

G. E. Graff of Ranco, Inc., giving the report of the resolutions committee, discussed three or four contemplated resolutions, but submitted only one definite resolution, to the effect that a cash reserve be set up out of any profits that Rema might show from the All-Industry Exhibition.

REPORT ON N.A.C.A.

The aim and purposes of the National Air Conditioning Association were explained by H. F. Spoehrer of Spoehrer-Lange Co., a member of the N.A.C.A. relations committee. Purpose of this association, he said, was to coordinate all of the factors in the business—original equipment and accessory manufacturers, dealers, consulting engineers, etc.

Membership in the association has grown from 40 members in January to 80 at the present time he said, of which about 50% are manufacturers, 8% retail dealers, and the rest consulting engineers. Dues are scaled by the type and size of the business, so that no individual in the business need feel that he is excluded because of the amount of dues.

The N.A.C.A. is asking no help from Rema other than that its members also take out a membership in N.A.C.A. where possible, said Mr. Spoehrer.

Although the American Society of Refrigerating Engineers will likely move its annual winter meeting from the traditional New York location this year, there is little disposition shown yet to have the meeting in conjunction with the All-Industry Exhibition, reported A. B. Schellenberg of the A.S.R.E. relations committee.

WHAT ABOUT DEFENSE?

Mr. Allen, one of the two delegates from Rema to the recent meeting of the United States Chamber of Commerce, gave a highly interesting outline of what transpired at the meeting concerning industry and the defense program. Highspots from Mr. Allen's report:

Priorities: Individual manufacturers will be foolish to go to Washington for individual ratings. Making some 20,000 general classifications weekly, the priorities division just can't handle individual cases.

How much defense effort? 25% of industry's productive capacity must go for defense. Surveys have shown that about 50% of the plants in the country won't be useful (the 5 and 6-man shops) but the rest must do their part. Particularly plants employing 50 men or more.

What about plants built by government 5-year amortization plan? After the emergency, the machinery may be oiled and the plants locked up until another emergency rolls around.

How high can the debt go? $90 billion debt in sight, but government men point out that this is only equal to our annual income, and many businesses operate successfully with a debt equal to the annual income.

The labor situation: $1-a-year-men say don't worry, less than 2% of labor out at any one time. Labor legislation generally opposed on the grounds that it might encourage more restrictive legislation on business ultimately. Warning given that increasing wages may bring more labor trouble.

What should you do about defense? Volunteer your plant capacity or services, before the government steps in to tell you what you **must** do.

In making the Rema president's annual report, Mr. Vallee lauded the members for the active manner in which they had participated in the activities of the association, and reviewed the growth of accomplishments by the association.

COMMITTEES ARE LAUDED

"At the beginning of our present administrative year," related Mr. Vallee, "your board of directors created several additional committees, adding two more during the year, and giving us now a total of 16 functioning committees, all of which are very active. We spent a lot of time in selecting the personnel for these committees, and one of the biggest thrills I have ever had came to me after our invitations had gone out. There wasn't a single member of Rema who declined his appointment. This experience gave me my first real feeling of the spirit that exists in our association.

"A tribute is due also to executives of member firms for the manner in which they have supported our organization and its activities. We are especially grateful to those who contributed so much to the success of our Third All-Industry Exhibition by their early and frequent references to it in their regular trade paper advertisements, and by their conscientious distribution of the promotional material sent them. We look for even more cooperation for the next Show."

Reviewing some of the moves made by Rema during the last year, Mr. Vallee brought out the following points:

The present plan of holding membership meetings at a time and place separated from the All-Industry Exhibition is the answer to the problem of lack of attendance on the part of some members.

Setting out a year ago to put on a bigger and better show, Rema took nearly 20,000 additional square feet of space and spread out on the mezzanine floor. In so doing several new problems were encountered, but out of the experience of last January, it is believed that satisfactory solutions have been found.

ACTIVITIES ARE MANY

Progress has been made in the further development and operation of the Credit Interchange Service. Number of companies currently participating in this service is now larger than at any previous period.

A considerable investment in time and money was made in expanding the scope of the association's information service on distribution outlets, and in particular, in placing this activity on a basis which freed Rema from fear of legal criticism.

A membership roster was published in which, for the first time, was set forth a description of the activities of Rema, and this has been widely distributed.

The executive committee drew up an outline of the duties of each of the several association committees—something which was not previously reduced to writing.

Careful design was given to the selection of an official emblem, which has become sufficiently established to prompt the suggestion that consideration be given to a recommendation to members that they in turn make use of this emblem on their own stationery, printed matter, and trade paper advertising.

Under an amendment to the by-laws the direction of the association is vested in a board of directors, composed of nine members, plus the immediate past president who also shall serve as a director for a term of one year following his retirement from office. The nine directors are elected in classes of three, each for a term of three years. Officers will be elected from the board.

In his concluding remarks Mr. Vallee stated that

"If ever there was a time when business associations can be careful to the members of an industry, it should be from now on. Laws affecting business and rulings by agencies, set up under such laws, are changing almost daily. To meet the changed conditions and the many proposed changes, business must be as adequately represented to protect its many interests as labor already is.

"From Washington comes the word that America's productive capacity for defense materials is about to be harnessed into one great machine, through committees formed within industries themselves, but with free action by individual plant units curtailed in the interests of national defense. It is squarely up to a trade association to formulate and express the collective thought of its members."

Unusual Features Mark New Taylor Freezer

BELOIT, Wis.—Latest model of the "Speed-Ease," said to be the first complete ice cream department requiring less than 12 sq. ft. of floor space, heads the new line of ice cream equipment introduced by Taylor Freezer.

This model, first introduced in 1940, measures 55 x 31 inches. Freezer is of 6-quart capacity, and cabinet of 40 gallons—20 gallons for hardening and 20 for dispensing. The cabinet also has a compartment for mix storage, and is powered by a ½-hp. self-contained compressor.

Leader of the counter freezer models is the DuMore, which has a capacity of 5 to 7 gallons an hour.

Feature of the 2½ and 5-gallon models is Taylor's new "Signa Vox," a device which is claimed to prevent damage from over-freezing. When over-freezing occurs, the Signa Vox releases the mechanism and emits a loud signal. The operator then turns off the freezer, waits a few minutes, and turns it on again.

A new edition of "Little Stories of Big Successes" describes the complete line and cites experiences of several users.

again
IDEAL
writes
BEER
COOLING
HISTORY!

with the *New..*
Revolutionary

IDEAL "FROST DRAW"
DIRECT DRAW DRAUGHT BEER COOLER

that Eliminates All the Shortcomings of Ordinary Direct Draw Systems.

Here, for the first time, is a direct draw cooler that will dispense beer as cold as 32 degrees immediately, even if the barrel temperature is as warm as 50 or 60 degrees on delivery. Here is the solution to the hot-shot delivery problem that has haunted distributors and refrigeration service men as a result of beer delivered too warm for immediate dispensing.

And best of all, Ideal has completely licked the sanitation problem with its built-in flushing system.

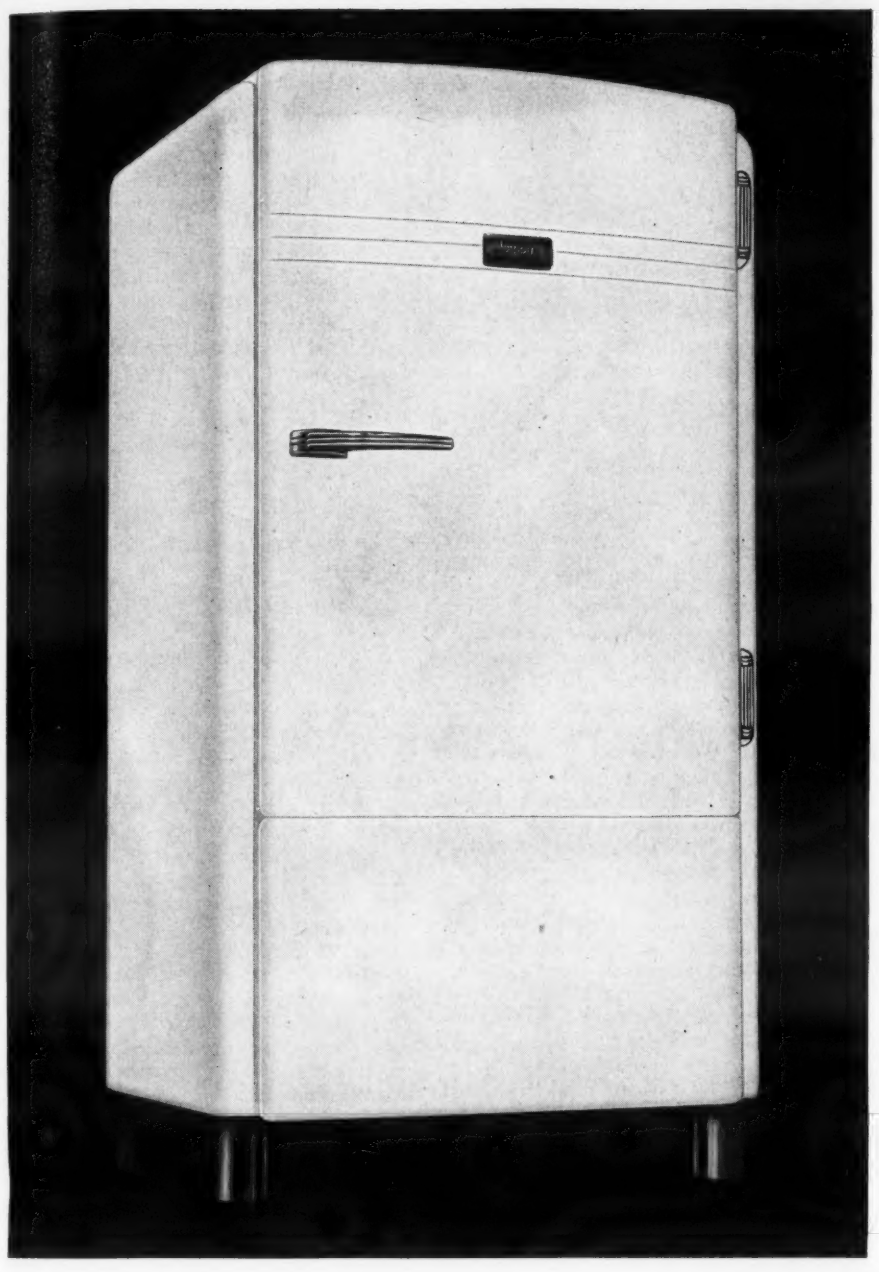
DEALERS AND DISTRIBUTORS:

Sensational public acceptance makes it unbelievably easy to sell, so write today for complete information on this new Ideal Direct Draw Cooler, and get the exclusive advantages available only with this great beverage cooler line.

REFRIGERATED FAUCETS, REFRIGERATED BARRELS, REFRIGERATED BEER from BARREL to GLASS

THE IDEAL BEER COOLER COMPANY
Manufacturers of the Famous Ideal Wet and Dry Beverage Cooler Line
2953 EASTON AVENUE SAINT LOUIS, MISSOURI

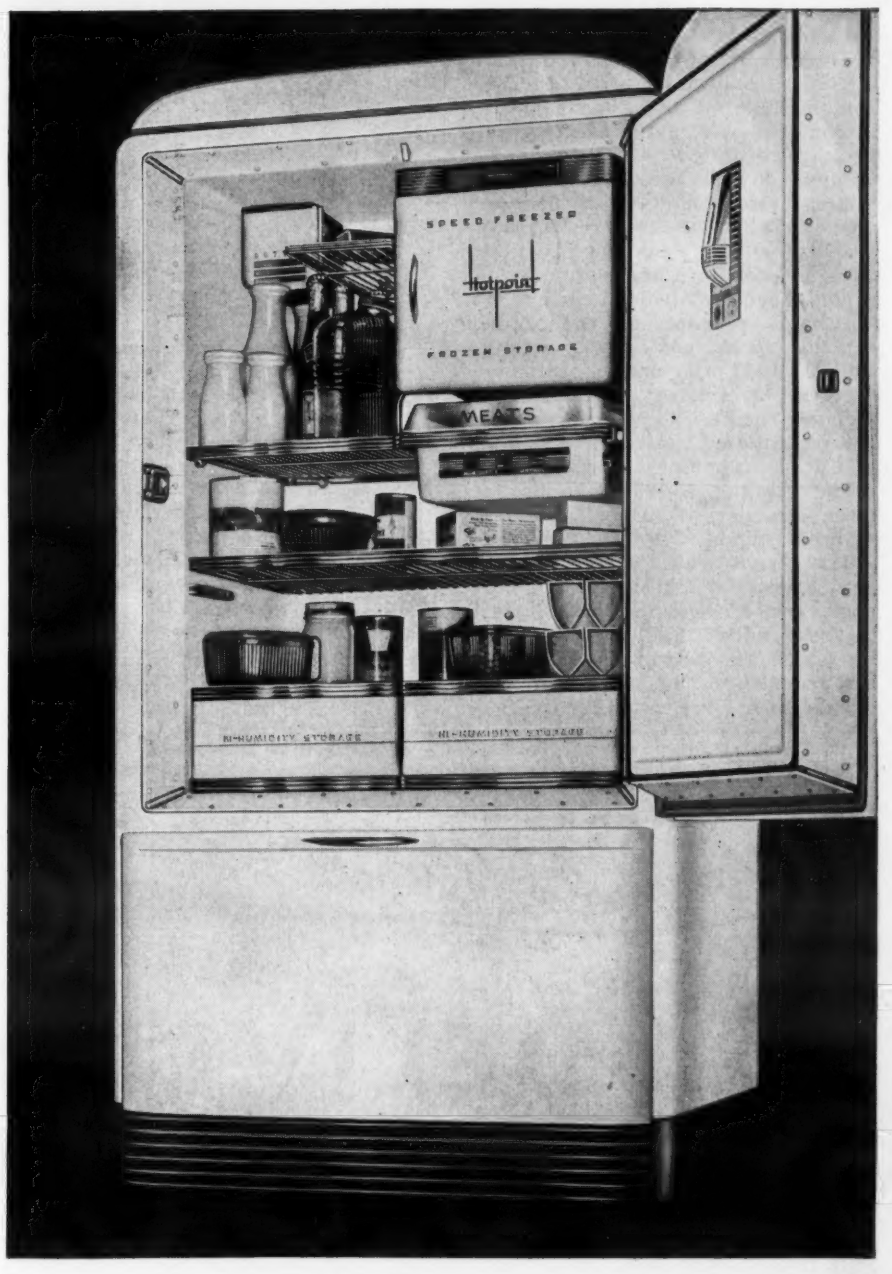
MORE *Plus* FEATURES WITH HOTPOINT REFRIGERATORS



←SPECIAL NORMAN, Hotpoint quality construction throughout, 6 cu. ft.
Prices start at $119.95*

DORIC DE LUXE, the big → new Hotpoint 7 cu. ft. full-family size refrigerator.
Prices start at $214.95*

*Prices subject to change without notice.



"By Every Yardstick a Great Refrigerator Buy"

TODAY, the electric refrigerator is an essential part of the American home scene. It is no longer a luxury but a staple piece of equipment for the home; a necessity. The chief difference in electric refrigerators now lies in their *plus features*—and it is here that Hotpoint shines.

For Hotpoint is able to offer not only big values in merchandise but a great name in household appliances as well. Hotpoint also offers the buyer such outstanding sales features as the Butter Conditioner, Vacuum-Sealed Thriftmaster Unit, Giant Bottle Zone, Hi-Humidity Compartments—*plus features* that make dealers say that easy-selling Hotpoint is "by every yardstick, a great refrigerator buy!"

These sales-making features, *plus* powerful promotion helps, aggressive selling plans and nation-wide advertising, are what win customers. Hotpoint's long-lived, trouble-free performance helps you make more money, too. And the new sales record this year places Hotpoint with the first division leaders. See your Hotpoint distributor for information. Edison General Electric Appliance Company, Inc., 5632 W. Taylor Street, Chicago, Illinois.

Thoughts at a Glance

"USE Values" is a term that we hear a great deal in the appliance business. Repeated expression of this phrase is a good omen for the retailer, the customer and the manufacturer.

"Use Values" indicate the practical services which a product delivers to the user long after emotional buying urges have been forgotten.

When a manufacturer talks "Use Values" you know that he has considered the needs of users. He has seen beyond the customer's order blank. He has built into his product utility features that make users forever glad they bought it.

When a salesman talks "Use Values" he tells an interesting story in language that the customer understands. He tells a story that never grows old. A story that never loses its thrill, because each year there are new millions of people eager to hear it.

Over a million new families are launched each year. Most of them are young couples to whom the purchase of household appliances is an exciting new experience. To them the "Use Value" story is as absorbing as a best-selling novel; as important as a vote for president.

For 35 years the people at Hotpoint have been guided by this simple truth: "Use Values" are salable customer benefits. This has been and will continue to be our policy: "Use Values" must be the first consideration in the design and production of all our appliance lines.

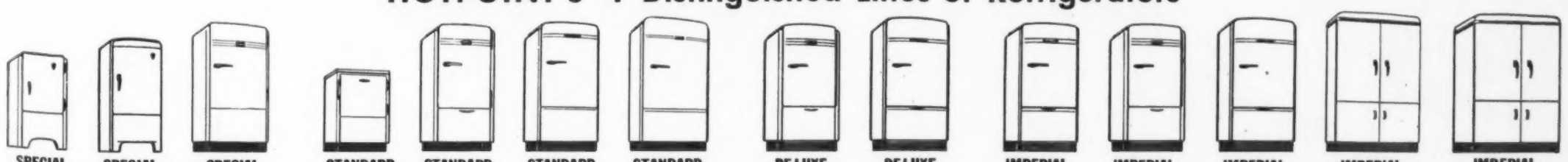
Vice-President

OBSERVE NATIONAL HOTPOINT REFRIGERATOR WEEK—MAY 19-31

ELECTRIC **Hotpoint** REFRIGERATORS

RANGES • WATER HEATERS • WASHERS AND IRONERS • CLOTHES DRYERS • AUTOMATIC DISHWASHERS • ELECTRASINK • STEEL KITCHEN CABINETS

HOTPOINT'S 4 Distinguished Lines of Refrigerators



Refrigerators Protect Varied Daily Menu In Detroit Zoo

ROYAL OAK, Mich.—Considering the amount of meat, fish, and food handled daily by the Detroit Zoo, refrigeration facilities are relatively small. This situation stems from the fact that Theodor Schroder, curator of animals, believes in a rapid turnover, to supply his charges with food that is absolutely fresh.

There are two walk-in refrigerators in connection with the zoo commissary; one used for meat which is received every day; the other for fish. According to Mr. Schroder the animals do not care for meat that tastes even remotely of fish—and vice versa. The two refrigerators are kept at 38° F. or slightly lower, by a 1½-hp. Zerozone compressor.

No other provision is made for perishable produce, as the animals eat this up as fast as it is received For example, the chimpanzees, who perform every day in the "Joe Mendi" theater to the delight of Detroit children, get a daily feeding of 2 lbs. of apples, 4 lbs. of bananas, 4 lbs. of bread, 10 lbs. of carrots, six fresh oranges, 1 lb. of rice, and ½-lb. of sugar.

The carnivorous lions, however, get along on 146 lbs. of fresh horse meat, two fresh eggs, and 6 quarts of fresh milk. The Siberian tigers, for which the Detroit Zoo is famous, are fed 120 lbs. of meat, milk, and eggs. There are now 14 tigers in the zoo, which Mr. Schroder believes to be the largest number in captivity anywhere. This number includes two recent arrivals—offspring of "Queenie," who has become famed for killing her mates.

Bears like apples, and they get 1 bushel per day, together with 30 lbs. of bread, half a bushel of carrots, and 3 quarts of milk. Polar bears exist on bread, dog biscuit, and cod liver oil, the latter served in ½-gallon portions.

Elephants and rhinoceros are vegetarians, and get along on beets, bread, bran, carrots, linseed, oats, and hay. The most varied diet goes to the bird house, where apples, bananas, carrots, crackers, eggs, fish, grapes, hay, hemp, lettuce (one head), linseed, meat, millet, oranges, rice, sunflower seeds, and wheat are delivered at every feeding.

Special rations are prepared for six separate hospitals, maintained for animals of various classifications.

Theodor Schroder has been looking after animals since 1908. At that time he was working for the famous zoo in Hamburg, Germany. Later he joined the Calais-Hagenbach circus, and performed all over Europe as a wild animal trainer. In 1922 he joined Ringling Bros.-Barnum & Baily circus, and later put in time with Hagenbach & Wallace and the Joe Robinson circus.

In 1928 he came to the Detroit zoo as curator of animals and has served there continuously ever since. Mr. Schroder asserts that he has no favorite among the various wild animals, but has worked in the ring with lions, tigers, and bears. He says, "You can't trust any of them, but you have to know how to get along with them. Some men can be around animals for years and never learn how to handle them—others get the knack almost at once."

Meanest animals in the Detroit zoo are zebras—particularly the elder males.

The Tale of a Cooler—and a Tiger

Jack Hahn in the doorway of a walk-in refrigerator with enough horse meat to make a hungry lion happy at one meal. Another walk-in unit is used for fish, which is received frozen.

Theodore Schroder, curator of animals at the Detroit Zoo, inspects the 1½-hp. Zerozone compressor which powers two walk-in refrigerators used to protect meat, fish, milk, and produce for his many charges. A former wild animal trainer, Mr. Schroder believes in a rapid turnover of food, and fresh supplies are received at the Detroit Zoo daily.

Henry Knowlton of the News staff is not too certain about the possibility of making friends with a six weeks old Siberian tiger which Mr. Schroder holds for inspection.

There Is No Substitute For Experience

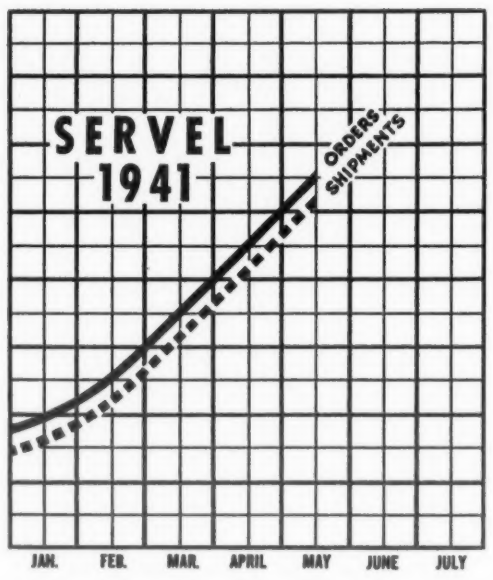
DELIVERING THE GOODS!

SERVEL is proud of its fine delivery record under the trying conditions of 1941.

In spite of oversold material markets, rising prices and an *unprecedented volume of business,* Servel has maintained prompt shipping schedules through the peak months of spring.

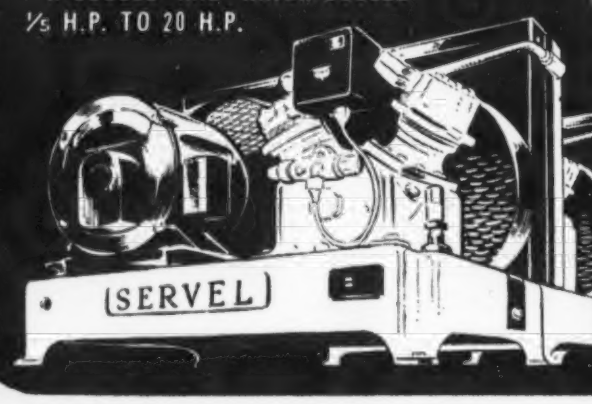
Servel Silver Fleet distributors and dealers, as well as allied manufacturers using Servel equipment, have earned ADDED PROFITS because their orders for standard products have been filled ON TIME. They have learned that it pays to pick a supplier resourceful enough and alert enough to foresee their needs and to be prepared to DELIVER THE GOODS.

Conditions beyond our control may change our position, but from the present outlook, we shall continue to serve our customers promptly throughout the season.



For full details of the Servel Silver Fleet line for 1941, write today to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

OVER 80 STANDARD MODELS—
AIR-COOLED AND WATER-COOLED
⅕ H.P. TO 20 H.P.



SERVEL
COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

Special Refrigerator Aids Drug Business

JACKSONVILLE, Fla.—A special biological refrigerator is one of the many services extended to physicians by Halliday's air conditioned pharmacy here. According to T. D. Halliday, who opened his store in 1931, the business has shown a steady increase in sales every month for nine years.

Mr. Halliday attributes this to keeping up with all new developments in his field and using them to render unusual services to physicians. The delivery boys for Halliday's collect all specimen bottles accumulated by doctors during the day and these samples are kept overnight in the special biological refrigerator. The next morning they are delivered to the State Board of Health.

If some of the doctors have office hours at night, the samples are left where they can be collected early next morning. This service requires a great deal of time, but Mr. Halliday reports that it has paid splendid dividends.

Air conditioning has been provided for the comfort of those in the store's waiting room, which is furnished with easy chairs and lounges.

Brooklyn Servicemen Hold Annual Dance

BROOKLYN—A dance and entertainment program is scheduled to be held by the Refrigeration & Air Conditioning Guild, Inc. for its members and its friends on May 24 at the grand ballroom of Hotel Edison.

Martin Beck and his orchestra, formerly of Billy Rose's Casa Manana, will supply the music for dancing and a floor show.

Frozen Foods Effect Substantial Savings For West Coast Zoo

SAN DIEGO, Calif.—Animals in the San Diego Zoo have been assured of a continuous supply of fresh meat and prepared animal foods since a 30-locker quick-freeze plant was installed by the feeding and maintenance division of the zoo. The food storage plant was designed by a Los Angeles refrigeration service firm for keeping large quantities of food used in the institution, thus eliminating waste.

Before the refrigerating equipment was installed the zoo was required to buy fresh meat from day to day to feed the feline population, but it is now possible for the zoo to store meat for as much as 90 days in advance, thus effecting economies in making large purchases.

The refrigeration system, located inside the zoo building has 30 ample sized lockers, and is powered by a 3-ton compressor. All meats received by the institution are frozen in a sharp-freeze room before being placed in storage.

Orange Juice Stored In Sharp Freezer

RACINE, Wis.—Orange juice will be frozen and stored in a special low temperature refrigerator being built by the Riebe Refrigeration Co. for Dr. G. L. Ross here. Dr. Ross, who has a citrus fruit ranch in Texas, and who markets "Mr. Ross' Health Drink," in tin containers, wants to be able to hold quantities of orange juice for a considerable period of time in the smallest possible space.

The special low temperature refrigerator is being built from a used Frigidaire 5-cu. ft. box, and powered by a ⅓-hp. Universal compressor. Shelving will be made of ⅝-inch hard copper tubing, spaced 1⅝ inches on centers. The compressor will be mounted on the top of the refrigerator, so that the entire unit is portable.

At the present time Dr. Ross has about 75 dozen oranges on hand, which will be converted to juice and stored. Later the refrigerator will be used for the freezing and storage of meats and other products.

Mr. Riebe reports that he has built "24 or 25" low temperature boxes in the past year, most of which have been sold to grocery stores, meat markets, and fish dealers. These units were "built-up" using 3-inch sheet cork silvered on both sides.

One special unit built by Riebe Refrigeration has a frozen food compartment at the top, and a space for beer storage in the bottom. This unit, powered by a ½-hp. Kelvinator machine, is operating in the Stewart hotel, Milwaukee.

Another good market for low temperature equipment has been found by Mr. Riebe in the mink ranches located in Racine county.

Copeland Issues New Commercial Catalog

SIDNEY, Ohio—Attractively printed in three colors, a new catalog containing complete specifications and capacity data on its entire commercial line has been published by Copeland Refrigeration Corp.

Double-page spreads picture models of condensing units in two-color cuts and list complete technical data concerning them. Both water and air cooled models are shown, in addition to electric drive truck units and gasoline engine drive machines.

Similar information is given on compressors alone. Bottle type and pressure type water coolers made by the firm are also described in detail, as is Copeland's model C-12 small size commercial reach-in refrigerator.

Drying Agent Announced

NEW YORK CITY—Calcium chloride in cubes, for drying air or gases, is now available from the Solvay Sales Corp. Known as "Caloride," the fused blocks of drying agent measure 1½ x 1½ x 2 inches, and are said to retain their shape as they gradually diminish in size as moisture is absorbed.

Frigidaire men are selling at the unequalled rate of more than 700,000 HOUSEHOLD REFRIGERATORS IN 1941

...and selling a much larger percentage of higher-priced, higher-profit models besides!

Frigidaire Cold-Wall sales have increased at more than 2½ times the rate of other models in the line!

Frigidaire Porcelain sales are more than three times what they were last year!

Frigidaire 1941 Porcelain sales are 20% *more than those of all other makes combined!**

Since every Cold-Wall and Porcelain sale means a $20 to $25 higher retail price than the sale of a comparable conventional model, imagine what this tremendous increase is doing to Frigidaire dealers' dollar volume and profits.

Here's further proof of the power of Leadership in Action!

Range Sales Are Soaring, Too!

Frigidaire dealers are now selling Frigidaire Electric Ranges at a pace that is *twice as fast* as during the record year of 1940!

More than ever it pays to

Sell the favorite

Sell Frigidaire

More than 6 million built and sold

FRIGIDAIRE DIVISION • GENERAL MOTORS SALES CORPORATION • DAYTON, OHIO

Frigidaire Electric Appliances—Refrigerators—Ranges—Water Heaters

*Based on latest United States sales figures released by National Electric Manufacturers Association

St. Louis G-E Dealers 'Take A Flyer' In James & Co.'s Range Campaign

ST. LOUIS — Aviation-minded salesmen of this city will have the opportunity to make round-trip air jaunts to Chicago in June, as part of the second "Sky-High" range promotion sponsored by James & Co., G-E distributor here.

In this promotion, James & Co. is cooperating with Chicago & Southern airlines, who supply without cost the use of one of their 21-passenger Skyliners, and donate the tickets for the round trips awarded to salesmen. Both prospect and salesman thus have the chance to take a flying trip—and interest aroused last year brought more than 1,400 women into the James showrooms.

The new contest runs from April 15 to June 15, and features flight prizes for both dealers and salesmen in the first division of the promotion. Any salesman who sells five ranges in the two-month period qualifies for the Chicago round-trip, providing he is the "high" salesman from that dealership. The dealer-owner who produces the largest volume of range sales against quota also receives a round trip from St. Louis to Chicago.

The prospect-flight division is built around a series of weekly cooking schools to be held in the James Co. basement, where two model kitchens will permit 100 women to attend. These will be held on successive Wednesdays, with eight short half-hour air trips over St. Louis awarded at each session. All prospect-flights are run off on the same day in June, 20 persons being taken aloft each trip. Last year a large number of men attended the schools, and even more are expected this year.

Successive meat menus will be featured at the cooking schools. One highlight will be a demonstration of a model airplane flying kitchen by a Chicago & Southern stewardess. Oven-cooked meats also will be emphasized by salesmen in their prospect calls.

A concentrated newspaper advertising campaign totaling $2,000 during the range drive was voted by all G-E dealers subscribing to the promotion, to run twice weekly. Dealers in the drive are Hesse Appliance Co., Milton Appliance Co., Melcher-Schene Hardware Co., Baden Refrigerator Sales & Service Co., Johnson Hardware Co., J. C. Geitz Furniture Co., Union Appliance Co., Manne Brothers, Parsons & Putman, Inc., Fair Mercantile Co., Albers & Co., Mac Hardware Co., Schulte Hardware Co.

Hampton Electric Co., Ideal Plumbing & Heating Co., May Appliance Co., Ross Appliance Co., General Appliance Co., Lehman Hardware Co., Moseley-Thuner Co., Watike Furniture Co., Cordes Furniture & Appliance Co., Refrigeration Appliance Co., Schwartz Brothers. Downtown firms who will display model planes in their windows include Eagle Furniture Co., Stix-Baer-Fuller, Horne Furniture Co., Lammert Furniture Co., and Goldman Bros. Furniture Co.

Honeymoon Special Kit Holds Small Appliances

BRIDGEPORT, Conn. — Designed especially for June brides, a Wheary trousseau case packed with three small electrical appliances has been made available by the heating device section of General Electric Co. to sell at $29.50.

The "Honeymoon Special" includes an automatic glass coffee maker, listing separately at $12.95; an automatic light weight iron with a pilot light, selling for $8.95; and a toaster listed at $4.50, which has expanding door hinges to permit toasting sandwiches and muffins.

Of airplane weight, rigid-tested construction, the trousseau case has a rich brown du Pont Fabrikoid cover, with saddle leather binding. The case is 18 inches square and 8½ inches deep.

National advertising on this offer will be inserted during May and June.

March Washer Sales Hit New High of 191,325 Units

CHICAGO—Factory shipments of household washers during March exceeded all previous totals for any month, the total of 191,325 units compared with 149,730 in 1940 and with 189,393 units in the month of 1937, the best previous total.

Ironer shipments during the month totaled 17,066 portable and table models, compared with 12,048 a year ago.

Opening of Whalen's Appliance Store Draws Crowds From Nine Texas Towns

W. D. Whalen is "monarch of all he surveys" as he stands in his newly opened appliance store in the heart of the Rio Grande valley.

More than 8,000 people crowded through the Whalen store in the three days following the formal opening. Here are some of them.

* * *

Keep Sales Floor Lively Looking, Martin Warns

CINCINNATI — Always keeping someone on the major appliance sales floor and trying to create the impression of activity has helped sales for several years, believes Buyer Joe Martin of Pogue's, General Electric dealership here.

"Any prospective customer hates to walk onto an empty sales floor," contends Mr. Martin. "Whenever there are no customers around, and the department may look monotonous, I ask the sales people to begin looking over the refrigerators, washers, etc. on display.

"Salesgirls are told to stand by an open refrigerator door and talk there, instead of back of a partition or out of sight. The sight of people doing something which concerns the appliances on view is good psychology, and invariably spurs visitors to come into the department," Mr. Martin says.

The door of every refrigerator should be opened about five times a day and left that way for several minutes, Mr. Martin believes. Salesmen open the door and let it stay open until someone else closes it, creating a certain amount of activity in the department.

Trade-Ins Exempted From Colorado Sales Tax

DENVER—Viewed with great satisfaction by all major appliance dealers is the act, passed in its final days by the 1941 Colorado legislature, just adjourned, exempting trade-ins from the state 2% sales tax.

Merchants and consumers alike have complained bitterly at what was called "double taxation." The sales tax law required merchants to "pass on" the tax. While consumers nominally paid it, merchants knew well that the tax paid cut down the net cash price which could be secured from the customer.

The new law exempts "fair market" value. Unless the trade-in allowance conforms to this definition, the major appliance dealer cannot make an exemption on the exact amount. This condition is expected to operate, indirectly, for better trade-in practice.

Nine-Circuit Lighting System Enables Nine Mayors To Officiate

McALLEN, Tex.—Appliance dealers who depend for their business upon a number of communities can take a leaf from the experience of Whalen's, Westinghouse dealership here, which used a novel stunt to transform the recent opening of its new appliance and kitchen addition into a regular "inter-community" celebration.

The dealership is located in the lower Rio Grande valley, on one of the principal highways, and draws business from all over the valley territory. To tie-in the interest of each of the nine communities in the opening of the new structure, the company arranged to have the lighting system on top of the building divided into nine circuits, with each circuit to be turned on by the mayor of one of the towns.

NINE-ZONE LIGHTING

The nine-zone lighting arrangement included the neon outline on both the east and west wings, the lights behind the glass bricks, each step on the dome of the building, the outline of the name "Whalen's," and the name itself.

A radio hook-up was arranged through a station just eight miles away, and the "grand opening" celebration plugged over the air and in other publicity. Result was that when the time came to broadcast the event, it took three traffic policemen to handle the crowds.

MAYORS TAKE PART

As each mayor threw a switch lighting up part of the building, the announcer told something about the community he represented, in addition to giving a running description of the general opening ceremonies. Apparently there were plenty of listeners, for in the three days following the formal opening more than 8,000 persons visited the dealership, seeing the entire remodeled store as well as the new appliance section.

"The margin on appliances is so low," reports W. D. Whalen, owner, "that we are trying to make our displays so attractive that the prospect will not want to look further, but will buy on the spot. So far the results have been swell."

NO. 4 OF A SERIES OF ADVERTISEMENTS DESIGNED TO HELP YOU SELL REFRIGERATORS FASTER

KNOW YOUR CUBIC INCHES!

You interest prospects when you show how modern design makes better use of storage space...

TODAY'S practical housewife doesn't want to waste an inch of space in her refrigerator. To save money—she wants to buy the smallest size unit and still take care of her family's needs. That's why you'll get her instant attention when you demonstrate how present-day shelving design is adaptable to all her needs.

Whether it's sliding shelves, 3-position shelves, removable shelves, tilt shelves, or the improved design of the ice cube department, she'll listen with interest when you demonstrate the many different ways she can use the space to her advantage.

And just as interesting to her from a practical standpoint is the finish. She doesn't want beauty alone. She wants a finish that will *keep* its gleaming whiteness; one that's *easy* to clean, one that resists food and grease stains.

And it's right here that DULUX can help you clinch that sale . . . help you turn *prospects* into *customers!*

For this brilliantly white finish is a prime favorite with women. It is resistant to chipping, cracking, food and grease stains. It's as easy to clean as a china dish. It saves work, it *stays* white. Its "made by Du Pont" reputation means "Quality PLUS" to housewives everywhere.

Put DULUX to work for you. It will help you sell refrigerators *faster!* E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Delaware.

FREE . . . SEND FOR THIS BOOK!

▶ Du Pont has prepared a new book to help you in your sales. It's called "How DULUX Has Helped in the Sale of More Than 9,000,000 Refrigerators." It's free. Write to: E. I. du Pont de Nemours & Co. (Inc.), Room 7156M, Du Pont Bldg., Wilmington, Del.

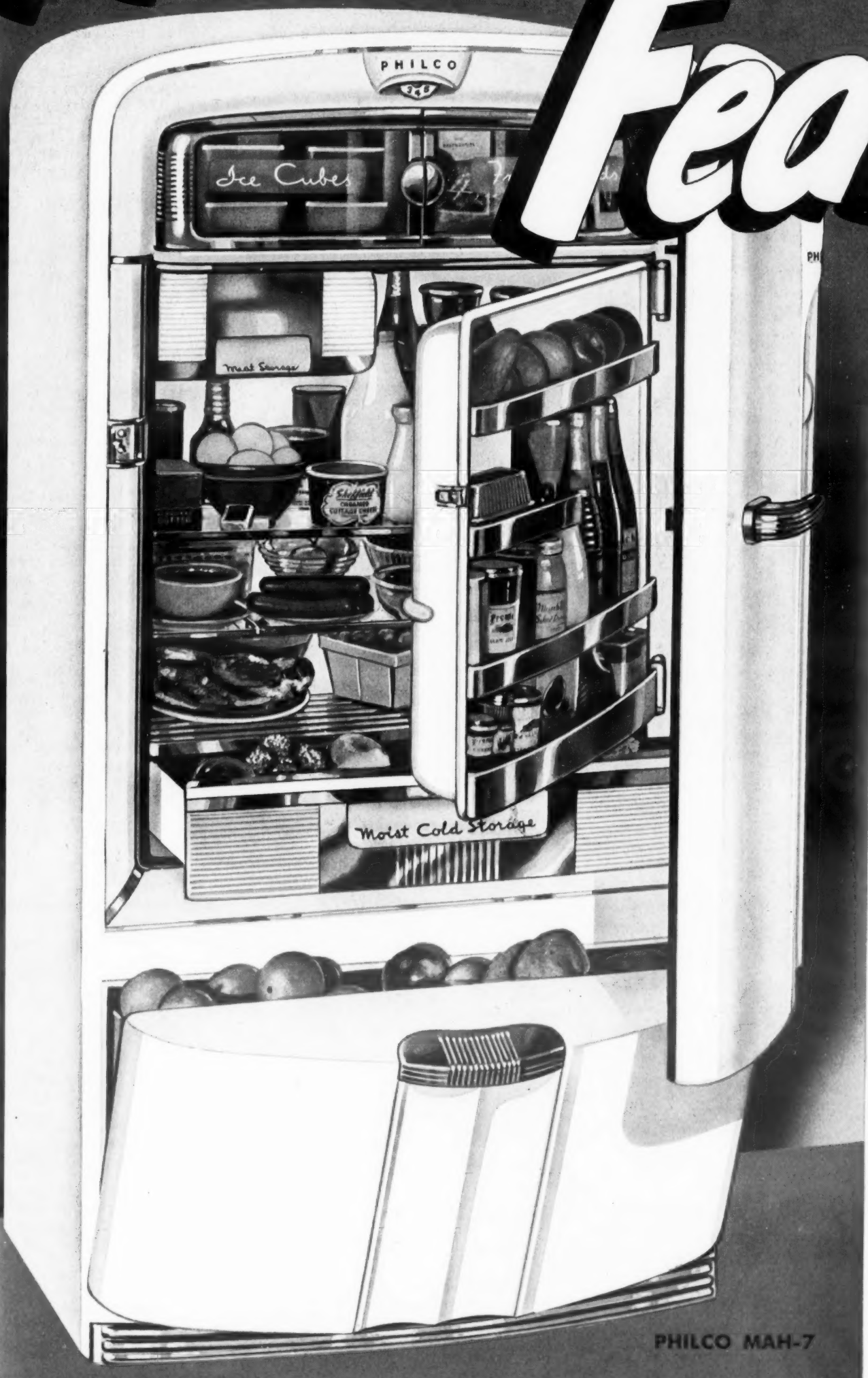
DU PONT REG. U.S. PAT. OFF. DULUX FINISH ON EXTERIOR

DULUX REG. U. S. PAT. OFF. DU PONT REG. U.S. PAT. OFF.

THE MODERN FINISH FOR MODERN LIVING...*It saves work*

PHILCO GIVES YOU THE *Most Saleable Features*

ever offered in refrigeration!



In every detail from top to bottom, Philco gives you more desirable features, more real selling points than were ever offered before in a single refrigerator. They're features your customers need only see to appreciate. Just show them the 1941 Philco ADVANCED DESIGN Refrigerator. They'll marvel at its new, glistening "inside and out" beauty. Show them its wonderful new services, economies and conveniences . . . its unrivaled dependability. Just show them . . . Philco's *Most Saleable Features* will sell themselves!

★ THE PATENTED CONSERVADOR

Only Philco ADVANCED DESIGN gives you this shelf-lined inner door that offers *26% more quickly usable space.* It actually doubles the front-of-the-shelf space. No hunting, shifting, groping, stooping or spilling.

★ HUGE, SEPARATE FROZEN FOOD COMPARTMENT

A separate, giant-size compartment for all modern frozen storage uses, in addition to the regular, oversize chamber for ice cubes. Plenty of room for packaged frozen foods, frozen desserts . . . even for large poultry.

★ BOTH DRY COLD AND MOIST COLD

Large, separate compartment for the healthful preservation of foods that require circulating DRY COLD air. And a complete, separate compartment for cooked meats, left-over vegetables and other perishables that need circulating MOIST COLD air to preserve their wholesome freshness and flavor . . . without the bother of covers.

***Plus* the Philco SUPER Power System, featuring the costly precision process, Superfinish. *Plus* the Huge Meat Storage Bin. Sliding Crisper Drawer. Many other sales-getting features! Get your share of this fast-growing, big-profit Philco Refrigerator business by *selling* the *Most Saleable Features* ever offered in refrigeration. Contact your distributor now!**

PHILCO ALL YEAR 'ROUND

The Most Valuable Franchise in the Appliance Field!

Repairing Top Mounted Hermetic Units Outlined & Described By Expert

Editor's Note: This is the second in a series by S. Belasco of Interstate Refrigerator Corp., New York City, one of the country's largest reconditioners of electric refrigerator units, discussing methods that make shop work on refrigerator units faster and more accurate.

In our experience, where we have tried different methods of overhauling and reconditioning General Electric Monitor Tops and Westinghouse top mounted hermetic sealed units, we find the following the best solution of repairing the above units.

The first thing to be done is to cut the lines as close as possible to the float and discharge the present refrigerant.

Then remove the screws from the bottom of the condenser units, being careful not to injure the suction line. Then, cut off the high side float and liquid line and chisel float assembly off the mountings. Then replace new float and resolder all connections.

The mechanic may find that the new high side float may be a little too large to replace back where the old float came out. We then enlarge the float opening so it may fit in. If the float has been installed properly, the next thing we do is as follows:

(1) Take the name plate and find out exactly the proper amount of gas the refrigerator requires. If the name plate is missing, would suggest that the mechanic find out the required amount of each model through the Specifications Book published by the Business News Publishing Co. When the required amount is found out, the refrigerant is to be weighed to the exact proportion and that proportioned refrigerant should be put in and positively no more or no less.

(2) The next thing is to hook up the drum container to a CY set and heat the drum until all the gas of the required amount is drained into the system.

(3) Next, plug in the unit and run for a few minutes. Then purge the system to relieve air, about two times, and then let the job operate.

(4) The service man must understand that in removing the screws from the bottom of the condensing unit, not to in any way hurt the evaporator. After doing this job two or three times, the mechanic will find it very easy to handle.

We have used the Aminco domestic replacement high side float in this work. It can be used with SO_2, methyl chloride, or "Freon" refrigerants.

To install, cut off flattened ends of inlet and outlet tubing. Solder these tubes to the system tubing in the same positions as those of float being replaced. Charge at charging valve until suction line is cold; allow machine to run until box is cooled and unit starts to cycle; then add refrigerant to bring temperature down or purge at charging valve if suction line becomes frosted. Excess gas or air in system may be purged at charging valve.

Temperature, suction and head pressures may be controlled by the amount of charge. However, this amount of charge is not critical as slightly more or less will not vary temperature or pressures excessively.

Middle Atlantic Jobbers Elect Davis President

HARRISBURG, Pa.—R. B. Davis of Melchior, Armstrong, Dessau Co., Inc. was elected president of the Middle Atlantic Jobbers Association when the organization held its spring meeting here. M. J. Trautman of Refrigeration Supply Co., Washington, D. C., was elected secretary.

Retiring president was George J. Roche of Parks & Hull Appliance Co., Baltimore; retiring secretary was Harry H. Jaeger of Radio Hospital, Trenton, N. J.

All member firms of the Middle Atlantic association were represented at the meeting with the exception of A. R. Tiller, Inc., Richmond, Va.; Atlantic City Auto Supply Co., Atlantic City, N. J.; and Electric Warehouse, Philadelphia.

Directors of the national jobbers association who were in attendance at the meeting included Alex H. Holcombe, Jr., H. S. McCloud, and Mr. Dessau, who was representing his sales manager, K. J. Marshall.

Columbus Service Operators Worried as Jobs In Defense Industries Lure Men

COLUMBUS, Ohio—The draft and defense projects are taking an important toll of refrigeration service men from this territory, according to reports from the three servicing organizations which admittedly do the bulk of both household and commercial work here.

The three firms—Evans & Mohr, Commercial Refrigeration Service, and United Refrigeration Service—report that, in addition to the loss of one or more men each to military service, other service men have left their employ to take jobs at the new plane plant being constructed here by Curtiss-Wright.

With the "heavy season" for refrigeration service work just approaching, loss of these experienced workers threatens to work a real hardship on the companies concerned, especially in view of the difficulty of securing men of sufficient aptitude and experience to fill their places, it was said.

As a member of one of the firms involved explained it: "A **good** service man generally always has a good job, and we can't afford to risk our reputations as reliable workmen by turning any other kind of man loose on any of the jobs we handle.

"The man we want is the kind whose work stands up, and who's used to handling the job by himself unless it's something 'way out of the ordinary that one man just can't do alone," this man continued. "If his work always has to be checked back on, or if he's the kind of fellow who's always needing help, we might as well not have him.

"We've spent a long time building up a reputation for good work—but it only takes one or two slipshod jobs to undo years of careful servicing in the customer's mind. And once you lose a customer, they don't soon come back. It takes plenty of time to train even an experienced man to one particular way of doing things, and with the heavy servicing season coming up, we can't afford to even consider any other kind."

One company was planning to "import" a service man from Fort Wayne, Ind., who made a good impression on a routine employment call a couple of years before. "Even for that length of time, we remembered him," the manager explained. "That'll give you some idea of how scarce are the kind of men we're after."

It was explained that the most difficult type of man to replace satisfactorily was one who specialized in household servicing work, where requirements are even more exacting than in commercial work.

In that spot you station a policeman; a cartridge to remove water and acid from the refrigerant passing through it. Let it fail to do a thorough job and you've a bad case of frozen valves, corrosion and formation of sludge.

Alorco Activated* Alumina makes the best policeman you can have there. No other desiccant has greater capacity for removal of water and acid from liquid refrigerants. You can prove this for yourself, with this simple laboratory test.

Immerse a sample of refrigerant containing only a trace of water in dry ice; you get it down to 110° F. below zero. The moisture shows up as a cloudy, icy slush in the liquid. Now pass that same refrigerant through Alorco Activated Alumina and repeat the test. It remains crystal clear, because every bit of water and acid has been removed.

Ask your supply house for cartridges and dehydrators charged with Alorco Activated Alumina. ALUMINUM COMPANY OF AMERICA (*Sales Agent for* ALUMINUM ORE COMPANY) 1908 Gulf Bldg., Pittsburgh, Pa.

*Registered Trademark

These manufacturers supply dehydrators charged with Activated Alumina:

American Injector Co.
Fedders Mfg. Company
Henry Valve Company
Imperial Brass Mfg. Co.
Kerotest Mfg. Company
McIntire Connector Co.
Mueller Brass Company
Cyrus Shank Company

★ ALORCO ★
ACTIVATED ALUMINA
DRIES REFRIGERANTS DRY

High Price of Heat Exchangers Cuts Sales To Customers, Jobber Believes

By T. T. Quinn

COLUMBUS, Ohio—Manufacturers are passing up a nice chance for some extra business in heat exchangers by pricing the units so high that the service man is afraid to try to sell them to his customers, believes N. K. Mason, head of Refrigeration Electric Supply Co., parts jobber here.

"The average service man has come around to the point where he'll recommend a drier to many of his customers—and even, in some cases, an oil separator—but with heat exchangers priced as they now are, he knows he's in for a mean selling job in most jobs, so he doesn't give these units the attention they really merit," Mr. Mason said.

"The job of selling what a heat exchanger can do on a job has been pretty well done by the manufacturers—and on a big market job or something else that runs to large size, or where the owner wants performance above anything else, an occasional sale can be made. But on the average size job, where the owner has the dollar-cost at the top of his mind, it's next to impossible to sell one of the units at its present price.

"Drier business has shown a nice increase this year. It used to be that when a service man got on a job, his first move would be to add refrigerant—now he adds refrigerant **and** a drier.

"And I'm satisfied that heat exchanger business would also show a nice pick-up, if the price were somewhere in the range the service man believed they should be. Right now he himself thinks they're too high—so he doesn't try to push them as much as he might.

"And it's a sort of a shame, too—because in a lot of cases heat exchangers will really do a job, increasing efficiency of the system by at least 20% and showing a real saving in power costs. Maybe I'm wrong, but it seems to me that just a couple of dollars off of the present price of the units would mean an increase in sales that would more than make up for the difference."

New G-E Savings Plan Promotes Buying of Defense Bonds

SCHENECTADY, N. Y.—The General Electric Co. suspended its 18-year-old employes savings plan on May 1 and put into effect a defense savings plan to encourage its 105,000 employes to purchase United States Savings Bonds.

Under the new plan, all G-E employes may authorize the company to make deductions from their earnings for the purchase of series E, series F, or series G bonds, on a weekly, semi-monthly, or monthly instalment payment basis.

Midwest Export Manager Moves To New Offices

CHICAGO—Harry J. Scheel, export manager for Midwest Mfg. Co., has moved to new and larger offices at 176 West Adams St., occupying suites 1913 and 1915. Offices formerly were in the Merchandise Mart.

Jordan Equipment Co. Represents Marsh

COLUMBUS, Ohio—Jordan Equipment Co., 10 E. Town St., has been named representative here for Jas. P. Marsh Corp.'s line.

Anemostat Will Have Aluminum For Units Used In Defense

NEW YORK CITY — Anemostat high velocity air diffusers used in airplanes, ships, and industrial plants which are being constructed under government sponsorship will be made entirely of aluminum, as long as the supply is available under priority arrangements now in force according to a recent announcement by August Rust-Oppenheim, Anemostat president.

"In other cases we have found that steel is suitable for the manufacture of Anemostat diffusers," Mr. Rust-Oppenheim said, "particularly for installations where the units are not subject to the corrosive action of gases encountered in certain chemical plants used for defense production."

The company has tooled up to spin the largest and second largest cones of the Type "B" and Type "C" Anemostats out of special ductile spinning steel. Type "CCB," "CCM," and "HU" diffusers are already being manufactured entirely of steel, in line with the government's program to conserve aluminum for use in defense material.

Mr. Rust-Oppenheim stated that the company was cooperating with the government program "to the fullest possible extent," and is able to make deliveries of all models on both government and private contracts.

MEMO TO SERVICE MEN!
● Every once in a while, some sensational improvement comes along that means an important saving of time and money in service operation, and also does a better job. We're sure that when you investigate the new and exclusive Frigidaire Modulex Expansion Valve you'll find it's one of the most outstanding of such improvements in some time.
Service Sales Department
Frigidaire Division, General Motors Sales Corporation
Dayton, Ohio

Sensationally New

FRIGIDAIRE Precision-Built MODULEX VALVE

Four Reasons why no other expansion valve matches it!

1 May be installed in any place—in any position!

Hermetically sealed from all moisture. Solves installation difficulties of ordinary expansion valves. Saves time on every installation!

2 Reduces Suction Pressure Surging!

This valve gets its name, "Modulex," from this advantage—from its modulating control of the refrigerant. Because this valve tends to keep the evaporator filled with refrigerant, it increases the efficiency of the evaporator and more even temperatures can be maintained.

3 Lowest Price in Frigidaire history!

All the advantages you've been looking for in refrigerant control—and all at an amazing low price, the lowest in Frigidaire history for a comparable valve! Don't fail to investigate for your installations.

4 Small—Vest Pocket Size!

From top to bottom it's only 3⅝". Greatest width at any point is only 3 7/16"—and it's only 1⅜" inches thick. Carry it in your vest pocket if you want to. Overall weight only 14 ounces!

● Only Frigidaire offers you these advantages in an expansion valve—the advantages you've long been looking for. In fact, if you'd written the specifications yourself, you wouldn't have designed a valve to better solve your refrigerant control problems than this sensational new Frigidaire Modulex Expansion Valve.

Now, when you install an expansion valve you don't have to work with a clumsy, expensive, hard-to-handle valve that must be placed in just the right position to provide even satisfactory refrigerant control. No. You simply install Frigidaire's new low-cost, vest pocket size Modulex Valve, *wherever it's most convenient!* And after it's installed... don't worry about its performance.

This new valve is built with the same precision and quality workmanship as the world-famous Frigidaire refrigerator. It's backed by years of Frigidaire and General Motors engineering experience. It's stood the test of time and use in over 2500 installations!

Investigate this sensational new Frigidaire Precision-Built Valve, now! See how much better service you can give your customers, how much time and money you can save with its amazing improvements and low price. Contact your Frigidaire Distributor at once. Mail coupon below, today, for *free* descriptive booklet with full details, including prices.

FROZEN IN A BLOCK OF ICE!

The ONLY vapor-charged Valve which is not affected, in operation, by surrounding temperatures. May be installed in any place, in any position!

Contact YOUR Frigidaire Distributor!

Ohio Edison Co., *Akron, Ohio*
Colonie & Montgomery Sts., *Albany, N. Y.*
675 Greenwood Ave., *Atlanta, Ga.*
Pratt St. & Market Pl., *Baltimore, Md.*
420 N. Broadway, *Billings, Mont.*
600 N. Seventh St., *Birmingham, Ala.*
23-25 Blandford St., *Boston, Mass.*
1100 Main St., *Buffalo, N. Y.*
Merchandise Mart, *Chicago, Ill.*
1729 E. 22nd St., *Cleveland, Ohio*
P. O. Box 1052, *Dayton, Ohio*
1920 Market St., *Denver, Colo.*
824 Mulberry St., *Des Moines, Iowa*
4584 Maybury Grand Ave., *Detroit, Mich.*
500 San Francisco St., *El Paso, Texas*
2615 W. 7th St., *Fort Worth, Texas*
55 E. Washington St., *Hagerstown, Md.*
3104 Main St., *Houston, Texas*
927-31 N. Meridian St., *Indianapolis, Ind.*
212 Michigan Ave. West, *Jackson, Mich.*
2619 McGee Trafficway, *Kansas City, Mo.*
1057 North LaBrea Ave., *Los Angeles, Calif.*
831 E. Broadway, *Louisville, Ky.*
1071 Union Ave., *Memphis, Tenn.*
134 N. W. Third Ave., *Miami, Fla.*
647 West Virginia St., *Milwaukee, Wisc.*
4 Cummins Station, *Nashville, Tenn.*
19 E. Washington St., *New Castle, Pa.*
4436 Toulouse St., *New Orleans, La.*
P. O. Box 300, *Norfolk, Va.*
1250 53rd St., *Oakland, Calif.*
811-13 N. Broadway, *Oklahoma City, Okla.*
2558 Farnam St., *Omaha, Nebr.*
316 S. Jefferson Ave., *Peoria, Ill.*
1920-22 Chestnut St., *Philadelphia, Pa.*
404 Craig St., *Pittsburgh, Pa.*
1015 N. W. Glisan St., *Portland, Ore.*
29 Franklin Road, *Roanoke, Va.*
205 St. Paul St., *Rochester, N. Y.*
3414-28 Lindell Blvd., *St. Louis, Mo.*
2446 University Ave., *St. Paul, Minn.*
579 W. 2nd South St., *Salt Lake City, Utah*
301 S. Flores St., *San Antonio, Texas*
300 West Lake North, *Seattle, Wash.*
806 Pierce St., *Sioux City, Iowa*
320 Riverside St., *Spokane, Wash.*
351-57 E. Onondaga St., *Syracuse, N. Y.*
102 E. Lafayette St., *Tampa, Fla.*
146-48 N. Market St., *Wichita, Kansas*
(Also Toronto, Canada)

GENUINE FRIGIDAIRE MADE ONLY BY GENERAL MOTORS PRECISION-BUILT PARTS

Free! DESCRIPTIVE BOOKLET MAIL COUPON TODAY!

FRIGIDAIRE Service Parts Distributor

(Check list above for location of your Frigidaire Distributor)

Gentlemen: Please send me your Free Descriptive Booklet with full details, including prices, of the new Frigidaire Precision-Built Modulex Expansion Valve. I understand there is no obligation.

Name .....
Firm .....
Street Address .....
City and State .....

2 Plans May Minimize Threatened Shortage of Refrigerant Cylinders

Virginia Smelting Calls Drums 'Homesick' In Series of Customer Mailing Pieces

WEST NORFOLK, Va.—Personification of an empty refrigerant cylinder as a lonely, neglected, homesick individual anxious to return "home" to the jobber and manufacturer has proved highly successful for Virginia Smelting Co. in persuading customers to send back cylinders when they are through using them.

Prompt return of empty containers is of prime importance, especially to the jobber, for prompt delivery, current account balances, permissible equipment investment, and profit maintenance all rest on the assumption that cylinders will turn over a reasonable number of times yearly.

Virginia's plan, which has been in operation for the past year, is based on a long study. While its object is to "retrieve" empty cylinders, it also tries to do so without injuring the goodwill of the customer.

Three mailings are used, the jobber merely having to send to Virginia's promotion department the name and address of the customer and the number of the cylinder that is missing.

First mailing is a four-color postcard picturing a cylinder (with its number written on the tag) sorrowfully singing, "Carry me back to ol' Virginia." The card requests that the customer find the "poor, lonely, empty cylinder No. ....." and return him, suggesting that the customer can probably find him "away back in a forgotten corner of your shop." The name and address of the jobber is typed in at the bottom of the card.

If this postcard fails to produce, the second piece, a mimeographed letter, is mailed to the customer. Stapled to the top of the sheet is an addressed shipping tag. On bended knee, cylinder No. ..... is shown as he pleads, "Brother! Brother! Brother! Pin the tag on me." Text of the letter again stresses the importance of locating and returning the empty cylinder. Customers are requested to "tie it (the tag) to the empty and tell the Railroad Company to bring it to us—prepaid. We'll see that it gets back to 'ol' Virginia.'"

Third mailing piece, also a mimeographed letter, pictures a cylinder with folding money in his hand running away from the jobber. The letter reads as follows:

"It's money out of our pocket every time a refrigerant cylinder gets away. We don't believe you want us to be the losers when just a little help from you will prevent it.

"This is all you have to do . . . grab that empty No. ..... by the nape of the neck and put it on the first freight train or truck bound in our direction. Please pay the transportation to our address and we'll see that the empty gets back to the Virginia Smelting Co.

"If, for some reason, you can't do this for us, please jot down the particulars on the enclosed, stamped postcard and mail it to us—we'll be grateful, indeed!"

The jobber's name and address, of course, is signed to the letter.

Revere Brass To Close For Inventory

NEW YORK CITY—Notice that all its mills will close for inventory on Saturday, June 28, has been issued by Revere Copper & Brass, Inc. Operations will be resumed on Monday, July 7, the notice states.

All Revere offices and warehouses will remain open as usual, it is explained, and emergency shipments will be made, when possible, from finished mill stocks. Scrap cannot be accepted during the shutdown period.

Coast Jobber Requires Customer Deposits On Cylinders

LOS ANGELES—Shortage of new refrigerant cylinders due to national defense efforts' diverting production of cylinders to defense work has necessitated the setting up of a deposit system for cylinders, reports Refrigeration Service, Inc., supply jobber here.

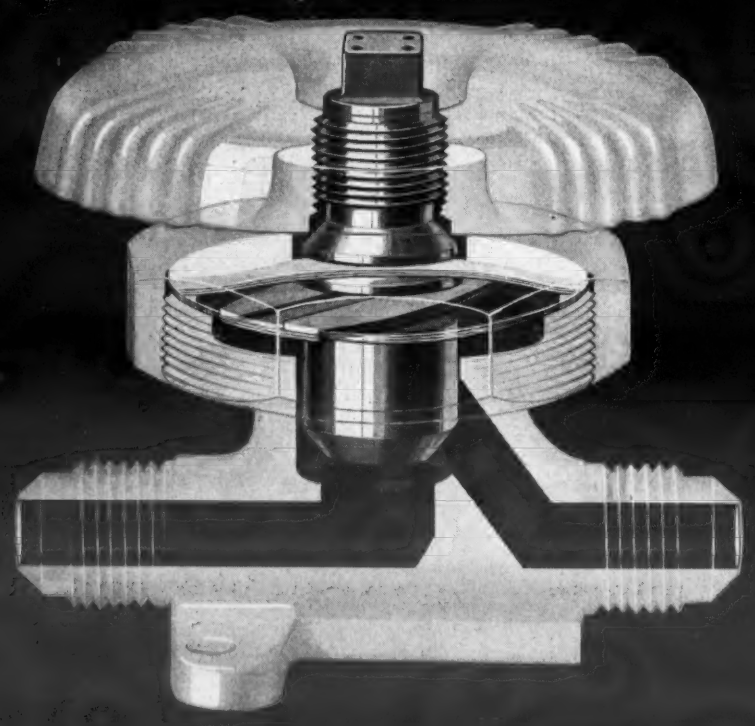
This move, which was requested by refrigerant manufacturers, is designed merely to bring about prompt return of cylinders to the supplier, the firm explains in a letter to dealers and service men.

Beginning on May 15, deposits will be required on all cylinders, said deposits to be refunded in full if cylinders are returned in good condition within 90 days from date of purchase.

Standard deposit schedule follows: "Freon"—9-lb. cylinder, $7; 34 lb., $10; 145 lb., $11; sulphur dioxide—10 lb., $6; 35 lb., $10; 100 lb., $12; 150 lb., $15; methyl chloride—6 lb., $6; 20 lb., $10; 60 lb., $12; 90 lb., $15; 130 lb., $20.

WEATHERHEAD

"Simplicity" Packless Valves



★ **Simplicity** . . . few parts—absolutely nothing to get out of order.

★ **Beryllium copper diaphragm** . . . fracture proof and leak proof. Has been tested through 100,000 "on and off" cycles without fracture.

★ **Inlet and outlet connections on same level** . . . simplifies installation.

★ **Full capacity openings** . . . complete refrigerant flow through valve with less than half a full turn.

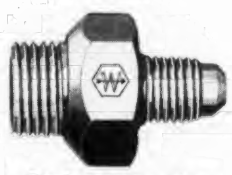
★ **Low overall height** . . . requires less installation space. The lowest height of any valve on the market.

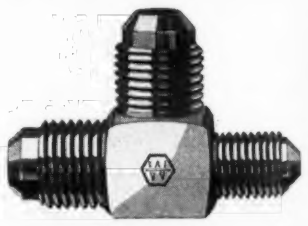
★ **Natural grip oval handwheel** . . . valve is easy to operate.

★ **3 Styles** . . . Two way—three way—angle.

For Exacting Service STANDARDIZE

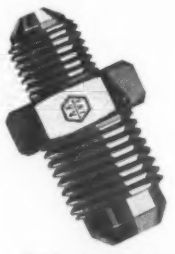
Flare nut


Strainer connector

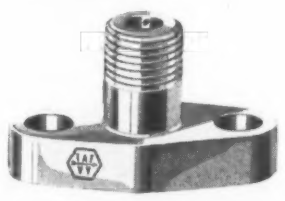

Reducer tee

Strainer

By-pass valve


Reducing union

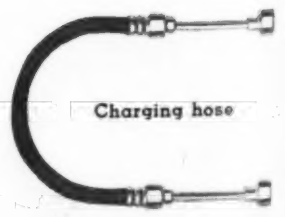
Elbow


Pipe flanges

Union

These Weatherhead Accessories

Testing valve


Charging hose

THE WEATHERHEAD COMPANY

Make a Pre-Cooler Of the Old Cabinet To Sell a New One!

BIRMINGHAM, Ala. — Possible solution of one trade-in problem, that of disposing of old ice cream cabinets, is seen in the unusual use of one by the Singleton Drug Co. here, which recently installed a new fountain.

Placed in the back of the store out of the way, the old cabinet serves as a pre-cooler for bottled drinks, being large enough to hold 400 bottles, more than the average size beverage cooler. From this pre-cooler the store replenishes its up-front supply of drinks and also supplies drinks for parties and all other "going out" orders.

Dayton Rubber Leases Space In Chicago

CHICAGO—Dayton Rubber Mfg. Co. has recently leased the property at 1011-19 West Washington Blvd. for sales engineering, and warehousing purposes.

The additional space is required because of increased business in the Chicago area, and will permit expanded warehousing facilities for better service to the industrial trade.

Utility Fan Corp. Opens Its New Factory

LOS ANGELES—New plant of Utility Fan Corp. at 4851 S. Alameda here was opened recently with hundreds of cooling and heating dealers, engineers, and utility officials on hand to tour the building. Luncheon and dinner were served to guests.

Marking the fifth expansion of the firm in 10 years, the new plant has more than three acres of floor space, and represents an investment of $250,000. Products manufactured on mass production assembly lines include evaporative air coolers, blowers, industrial exhausters, gas-fired forced-air furnaces, floor and dual-register furnaces, and circulating heaters.

Said to be the largest and most complete sheet metal shop in the West, the plant has new installations of a travograph and welders.

Col. Westover, Albany Dealer, Heads Officers

ALBANY, N. Y. — Col. Wendell Westover, president of Westover, Wolfe, Inc., General Electric air conditioning and heating distributor in the Capital District, has been elected president of the New York State Reserve Officers Association.

Jack Edmond, Serviceman And Onetime Soldier Of Fortune, Is Dead

HOUSTON, Tex.—A typical soldier of fortune who for the past 6 years has been a service engineer with Super-Cold Southwest Co. and its associate, General Refrigeration Co., Jack Charles Edmond, 54, died recently of a heart attack.

Mr. Edmond, a Kentuckian by birth, enlisted early in the U. S. Marine Corps. From this service he went to Nicaragua where he joined an insurgent army, becoming a leader and receiving several wounds.

Next Mr. Edmond turned to sailing, becoming a registered engineer, and traveled throughout the world.

Early in the modern war between China and Japan Mr. Edmond entered the forces of Chiang Kai Chek's republican army, and was commissioned a colonel. Said to be an authority of guerilla warfare, Mr. Edmond was also a flier. He assembled the first airplane received by the Chinese forces and took it aloft in its first flight.

Dealer Boosts Parts Sales By Having Supplies Jobber Do a 'Warehouse' Job

WORCESTER, Mass.—Proof that a properly stocked refrigeration parts and supplies jobbing firm can be a big help in boosting the business of the refrigerator sales-and-service organizations with which it deals is evident in the relationship which exists between Standard Supply, Inc. and Bay State Auto Supply here.

"This customer of ours regards us as its warehouse," reports Robert W. Sherperdson of Standard Supply. "If a customer comes to the Bay State store for a belt or some other small part, we simply say: 'Yes, we have that item. Please wait just a few minutes while we send to our warehouse for it.'

"The Bay State company has informed us that their service and parts business has increased 25% since we opened our doors for business in January, 1937," Mr. Sheperdson declares. "The company attributes this increase directly to the fact that it can pick up parts and supplies quickly, and thus can render prompt service to its customers."

Cooling For Lemon Storage

GLENDORA, Calif.—Working on a cost plus fixed fee basis, Associated Refrigerating Engineers, 2100 E. Vernon Ave., Los Angeles, is adding to the air conditioning system in the lemon storage house operated by Glendora Lemon Growers' Association.

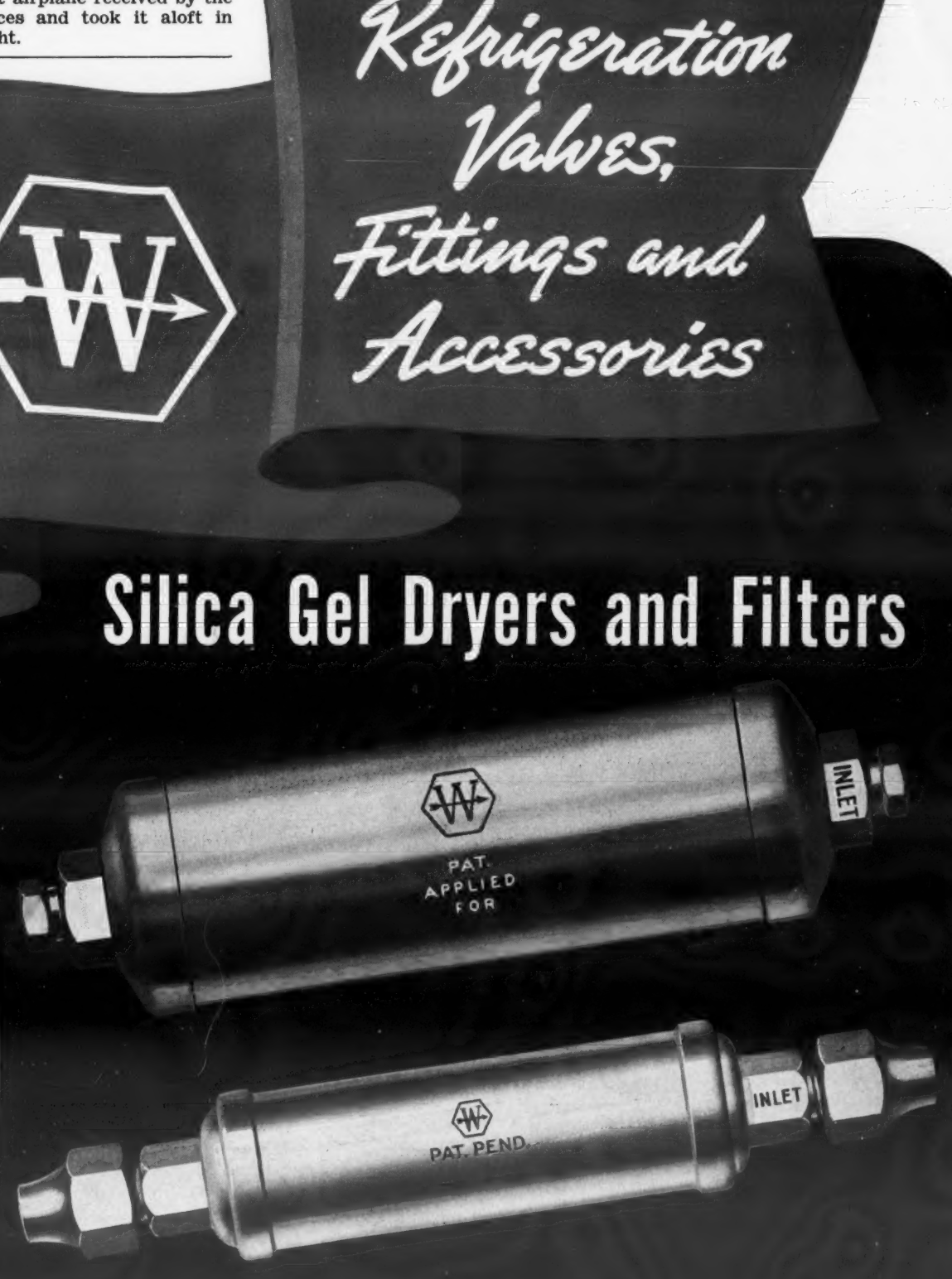
HEAD

Refrigeration Valves, Fittings and Accessories

ON WEATHERHEAD Valves and Fittings

will make your job easier...

Silica Gel Dryers and Filters



- Engineered to do the job.
- Silica Gel—chemically stable, powerful moisture absorbent and acid remover.
- All Metal Construction—stainless steel screens—no felts or organic filters.
- Hydrogen Welded—a single brazed assembly—no gaskets—no solder.
- Extra capacity—Silica Gel takes up more moisture.
- Zero Pressure Drop—Full flow of refrigerant at all times.
- Rechargeable and non-rechargeable types.
- Interchangeable design—proper unions make one dryer adaptable.
- A capacity for every job.

None Genuine without this mark

Every Weatherhead product or package carries the Weatherhead trademark. To be sure you get Weatherhead, look for (W) when you buy.

CLEVELAND, OHIO

Profits in Service

Contest For Service Men Booms Replacement Parts Sales 33%

John J. Geering, whose plan to make his service men good salesmen, results in more profits for both firm and the men, and—better service!

MILWAUKEE—Replacement parts sold by the John J. Geering refrigeration service organization will rise at least 33% during April and May of this year as a result of a "service contest" which is now in progress. This estimate of increased parts business is conservative, Mr. Geering believes, based on his experience during the operation of a similar contest last year, and with improved business conditions the total may surpass the 33% goal.

Mr. Geering decided that if contests would increase the efforts of salesmen, the same technique could be used to give service men the incentive necessary to do a large business in replacement parts.

From long experience in the refrigeration service business, Mr. Geering has found that selling replacement parts is more profitable than selling just labor, the customer is usually much better satisfied, and installed equipment gives better performance in the field.

Because Mr. Geering wants all his men to be well schooled in refrigeration, and because the company handles all Frigidaire service in Milwaukee, the contest has an entry fee. Service men entering the contest must buy a new Frigidaire service manual—value $5. The first 1,250 points earned in the contest, however, entitles the man to a refund on the purchase of his service manual.

Under the rules of the contest, service men can win points for about everything in the book—and there is ample opportunity for every individual to be a winner. Mr. Geering has found that this type of contest is much more satisfactory than one having a first, second, and third prize —with only three winners out of the entire organization.

Points scored in the contest are earned on the following basis:

Every service call completed	2 points.
Work orders on which parts are sold	5 points extra.
Every $1.00 of parts sold	3 points extra.
Sale of maintenance contract	10 points extra.
Value of contract in dollars	3 points extra.
Overhaul work sold	10 points extra.
Value of overhaul work	3 points extra.
Collection of past due accounts	10 points extra.

There is a penalty of 15 points deducted from the total amount of points earned for every repeat call on which the service man is unable to collect for labor and material. Parts and materials used on warranty and maintenance contracts do not count as extra points.

Here is the way the contest operates in actual practice. The service man goes out on a call and his report is tabulated in the contest as follows:

How Service Man Tabulates Report for Contest

Work Order No. 0000	2 points for the call.
Parts Sold on Work Order	5 points for selling parts.
Motor Replaced $5.60	
Belt Replaced 1.40	
Total $7.00	21 points for parts sold.
	28 total points earned on call.

Under regulations of the contest, service men are urged to "select their own prizes." The list of points and prizes, with approximate monetary values, is as follows:

Points		
1,250	Refund on Service Manual	$ 5.00
1,500	Tools	15.00
1,600	100 Piece Dinner Set	16.00
1,700	Fly Fishing Outfit	17.00
1,800	Elgin Wrist Watch	18.00
1,900	Toaster and Buffet Set	19.00
2,000	Kit of Tools	20.00
2,500	Cash Award	25.00
3,000	Movie Camera	30.00
3,475	Nesco Roaster	34.75
4,000	Kit of Tools	40.00
4,500	Kit of Tools	45.00
5,000	Cash Award	50.00

COMPLIES WITH UNIONS

To comply with union regulations governing wages to service men in the organization, Mr. Geering stated clearly in the contest rules that "the above list of prizes and monetary value of same, also the cash prizes, are voluntary on my part, and are not to be misconstrued as an increase in salary, or hourly wage, and are in effect during the contest only."

Service men terminating employment before the close of the contest relinquish all right and claim to prizes and monetary remuneration, under the contest rules.

According to Mr. Geering, the contest is set up in a manner that will increase his sales of replacement parts over a two-month period approximately 33% if all men reach the 2,500 point $25 cash award. At the present time the eight service men in the organization are running neck and neck, and it looks like a very close finish, with every man sharing in the prizes.

Service men in the Geering company are trained to put themselves in the place of the customer, particularly where the sale of replacement parts is involved. Things taken into consideration in the sale of new units, re-builds, and parts are the age and condition of the machine, its general use, and whether or not an overhaul would give from three to four years of satisfactory service.

HOW THEY SELL

In approaching the customer, Geering service men are taught to say: "If I were you, Mr. Customer—I would do so and so . . . because . . ." If the mechanism in question appears that it will be nothing but a source of worry and trouble, the purchase of a new machine is advised.

After three calls are reported on one customer in any 30-day period, the service record is pulled out of the file, which contains some 45,000 accounts. The card, which has a complete history of the account, filed by address, is turned over to the service supervisor.

The service supervisor then goes out with the service man and makes a call on the customer, suggesting necessary repairs, changes, or new parts, that would reduce the amount of service on the machine. If the service supervisor is unable to "sell" the work and equipment that appears to be necessary to keep the job in satisfactory shape, the account is then turned over to one of the firm's two salesmen, to be followed until such time as a deal is made with the customer. The practice has resulted in the sale of a great deal of new equipment, Mr. Geering reports, and is another indication of the latent possibilities for the sale of parts, new condensing units, and complete systems, that exist in a service organization.

REBUILDING WORK

Approximately five household refrigerators are rebuilt daily in the well-equipped shop of the Geering company. A large portion of this work is done for Milwaukee dealers, as well as for apartment house owners in the territory.

Rebuilding jobs are done for from $10 to $12 with no refinishing, and for $15 where the units are given a coat of lacquer. An additional charge is made for rebuilding or repairing motors on these units. No sealed units are rebuilt in the Geering shop.

The shop is equipped with a cabinet for discharging refrigerants, a large drying oven where all compressor bodies and parts are dehydrated, a lathe used to make parts that cannot be secured on the regular market, and an Imperial charging unit is used for putting refrigerant in machines. Coils are tested in a water bath, with compressed air, and the shop has special testers for float valves and all types of controls.

Service "schools" are held two nights a week, and every week Mr. Geering puts a "problem" on the blackboard, and asks the service men to write out the answers and place them on his desk.

At the present time eight service men, three installation men, and three shop men are employed.

Factors For Ideal Fruit Storage Described By Trane Co. Engineers

LA CROSSE, Wis. — Positive air circulation, even temperatures, and close control of humidity are recommended in commercial refrigeration systems used for fruit storage work, according to information issued by the Trane Co. Even where fruit has been stored carefully, temperatures, carbon dioxide concentrations, and relative humidities at the center of the stack may vary widely with similar conditions at the surface.

To overcome deficiencies of this kind air handling units are recommended, using a cooling medium provided by mechanical refrigeration, and installed within the room where fruit is stored. Air distribution is accomplished by conventional duct work and discharge nozzles designed to induce as much secondary air movement as possible. Such nozzles assure the air motion necessary to create even atmospheric conditions throughout all of the space. To prevent chilling of fruit, the nozzles are arranged so that low temperature air is not discharged directly on the fruit.

PROVIDING HUMIDITY

Humidity may be provided by special humidifiers or steam jets separate from the fan-coil unit, or by sprinkling water on the floor. Earth floors have been found to be desirable for fruit storage purposes because they hold more moisture and liberate it more evenly than concrete.

Fresh air must be introduced because continual recirculation results in abnormal carbon dioxide concentration. Ordinarily, excess air is vented to an after cooling room where the fruit is held while warming to a point above the outdoor dewpoint. Unless warmed gradually under conditions of reduced humidity the fruit will sweat, thus ruining wrappers, and encouraging the development of mould.

The abnormal carbon dioxide concentration in storage room air is caused by the fact that fruit is a living organism which breathes oxygen and exhales carbon dioxide even after it is picked. Since a process of oxidation is taking place, heat is involved, which, in turn, is dissipated through radiation, conduction, convection, and evaporation by the fruit itself.

WHY FRUIT SPOILS

It has been found that under ordinary circumstances chemical reactions will usually double their speed with each 18° F. temperature rise. Therefore, the heat liberated tends to speed metabolism, bacterial growth, enzymatic action, and the development of mould. All such actions are the direct causes of spoilage, and must be carefully guarded against in fruit storage.

Because of these conditions, it has been found desirable to maintain the lowest possible temperature for effective storage. However, there are numerous limiting factors to such procedures. Frosting usually limits the lowest temperature to 30° to 32° for unfrozen storage, but this is not true of all fruits. Lemons and bananas, for example, must be carried at considerably higher levels.

Relative humidity must also be carefully controlled to prevent excessive drying. Too much humidity will encourage mould and rot. Air movement is important, since even temperatures must be maintained throughout the entire mass of stored fruit. Only by active circulation will cool air permeate to fruits within the center of the pile.

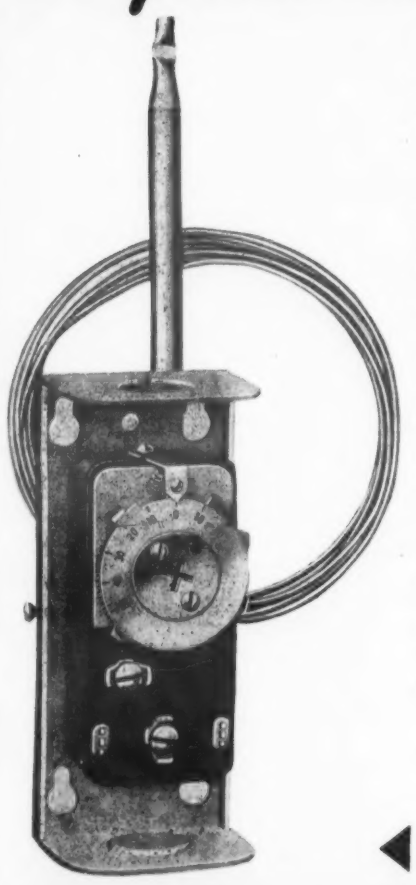
PROBLEM OF CO_2

Due to the respiratory action of the fruit, the carbon dioxide content of the air immediately surrounding the fruit will be increased. Excessive carbon dioxide is detrimental to some fruits, especially during coloring.

Early storage facilities were usually nothing more than ordinary warehouses.

ASSURE THEIR SAFETY WITH

Hydraulic-Action Controls



Safeguarding the health of the consumer, commercial refrigeration plays an important part in modern life. You, as a refrigeration man, can provide that safeguard to the highest degree by using White-Rodgers Hydraulic-Action Controls on all commercial installations.

White-Rodgers easily set cut-in and cut-out indicators on dials uniformly-calibrated in degrees Fahrenheit, combined with the exclusive principle of Hydraulic-Action, give you the only means of temperature control that provides positive accuracy regardless of:

- **AMBIENT TEMPERATURE CHANGES** — *No temperature drift in Hydraulic-Action Controls because of the minute portion of liquid in the capillary and diaphragm as compared to that in the bulb.*
- **POSITION OF BULB** — *Hydraulic-Action Controls operate accurately with bulb located in any position in relation to the switch mechanism.*
- **ALTITUDE** — *Temperature settings of Hydraulic-Action Controls are not affected by changes in altitude, due to the non-compressibility of the "solid-liquid" charge.*

You'll save on installation and service time too, if you give your customers the added protection of White-Rodgers Refrigeration Controls — because the same White-Rodgers features that assure more accurate performance will make installations easier for you!

Write today, for your copy of the new White-Rodgers Refrigeration Catalog.

TYPE 1609

Hydraulic-Action Temperature Control for various commercial applications. Range −20° to +50° Fahrenheit. Adjustable differential 3° to 25°.

WHITE-RODGERS ELECTRIC CO.

Controls for Heating • Refrigeration • Air-Conditioning

1211e CASS AVE., ST. LOUIS, MO.

HYDRAULIC ACTION CONTROL

S-W Nets $564,005 In First Quarter

CHICAGO—Net profit of $564,005 for the first three months of 1941, equivalent to earnings of 44 cents per share after provision for federal income tax (normal tax) and excess profits tax, has been reported by Stewart-Warner Corp. and subsidiaries.

For the same period last year net profit was $328,202, the equivalent of 26 cents per share.

Directors of the corporation, at their first meeting following the recent annual stockholders meeting, declared a regular dividend of 25 cents per share payable June 30 to stockholders of record May 31. James S. Knowlson, president and board chairman, announced that a bonus to hourly and weekly employes of the company who have a record of uninterrupted service would be paid at the same time.

In reporting to the directors, Mr. Knowlson stated: "The report of earnings must be taken with several grains of salt."

He pointed out that Stewart-Warner's business, like that of many other leading industrial concerns, is linked closely with the uncertain war situation and the national defense program.

"Increased taxes are a part of this uncertainty," he explained. "Furthermore," he added, "the company has found it necessary to tie up large amounts of cash because of its continually increasing interest and participation in the national defense program. This situation, we expect, will be further exaggerated as more and more of the company's production facilities are requisitioned for defense work."

Mr. Knowlson disclosed that orders for more than $14,000,000 of defense products are on the company books. These are over and above large orders for lubricating equipment, speedometers, instruments, and many other Stewart-Warner regular products, which, for purposes of classification only, are defined as normal production although the output is used largely for various types of defense equipment.

Westinghouse Profits Top 5 1-2 Million

EAST PITTSBURGH, Pa.—Westinghouse Electric & Mfg. Co., including the appliance merchandising division, for the first quarter of 1941 reported a net profit of $5,627,264 and declared a dividend of $1 on the common stock and $1 on the preferred stock, both payable May 29 to stockholders of record May 13.

Orders booked for the first three months were $145,620,948, compared with $65,250,169 for the same period in 1940. For the 12 months ended March 31, 1941, orders were $480,848,503, compared with $229,368,381 for the same period of 1940.

Net income for the first three months was $5,627,264, compared with $4,041,429 for the similar 1940 period. Net income for the 12 months was $20,571,263, compared to $15,539,463 for the period ending March 31, 1940.

A. W. Robertson, board chairman, told directors that if inflation is to be avoided, drastic rise in prices must be prevented. Said Mr. Robertson:

"In view of increases in taxes and labor, industry has to face a real problem in attempting to pay these increased expenses and make a profit, without raising the price of its product. This will require not only good management but the cooperation of better paid labor.

"The extra work arising out of national defense is placing a heavy burden on management, but great progress has been made, and in a few months the well-known ability of American business to produce satisfactory results will be functioning to our satisfaction."

Wolverine Tube's Net Profit Rises

DETROIT — Wolverine Tube Co. reports for the 12 months ended March 31, 1941, net profit of 99 cents per share on common stock. This compares with 94 cents per share on common stock for the 12 months ended March 31,. 1940.

PAR COMPRESSORS

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FOR replacement jobs it is of paramount importance to have a compressor of the right size. For every installation there is one correct size . . . one size that will insure maximum efficiency and minimum operating costs. With PAR you don't have to compromise with equipment too light for the job or too big to operate economically . . . you can do the job the right way and eliminate service calls.

PAR quality is available in a complete range of sizes . . . 2-cylinder and 4-cylinder compressors . . . 1/5 H.P. to 5 H.P. In the smallest or the largest, you get the same ruggedness of design, precision manufacture and advanced features that make the thousands of PAR installations throughout the nation famous for economy of operation and long-lived dependability. Replace with PAR!

THERE'S A PAR UNIT FOR EVERY NEED • SEE YOUR JOBBER

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MOBILE—MOBILE REFRIGERATION SUPPLY CO.
MONTGOMERY—TEAGUE HARDWARE COMPANY
ARIZONA
PHOENIX—J. CARL WHITE COMPANY
CALIFORNIA
FRESNO—ARBELL REFRIGERATION SUPPLY CO.
LONG BEACH—REFRIGERATION SUPPLIES DISTRIBUTORS
LOS ANGELES—REFRIGERATION SUPPLIES DISTRIBUTORS
OAKLAND—CALIFORNIA REFRIGERATOR COMPANY
SACRAMENTO—HINSHAW SUPPLY COMPANY
SAN DIEGO—REFRIGERATION SUPPLIES DISTRIBUTORS
SAN FRANCISCO—CALIFORNIA REFRIGERATOR CO.
CONNECTICUT
NEW HAVEN—RESCO, INC.
FLORIDA
JACKSONVILLE—BOWEN REFRIGERATION SUPPLY, INC.
MIAMI—BERNER-PEASE COMPANY
TAMPA—BOWEN REFRIGERATION SUPPLY, INC.
WEST PALM BEACH—MOTOR PARTS & EQUIPMENT CO., INC.
GEORGIA
ATLANTA—BOWEN REFRIGERATION SUPPLY, INC.
MACON—LOWE ELECTRIC COMPANY
ILLINOIS
CHICAGO—AUTOMATIC HEATING & COOLING CO.
CHICAGO—H. W. BLYTHE COMPANY
PEORIA—MARQUETTE EQUIPMENT COMPANY
INDIANA
INDIANAPOLIS—F. H. LANGSENKAMP COMPANY
SOUTH BEND—F. H. LANGSENKAMP COMPANY
IOWA
CEDAR RAPIDS—DENNIS REFRIGERATION SUPPLY COMPANY
DAVENPORT—REPUBLIC ELECTRIC COMPANY
DES MOINES—DENNIS REFRIGERATION SUPPLY COMPANY
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WATERLOO—WINTERBOTTOM SUPPLY COMPANY
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WICHITA—HOWARD SUPPLY COMPANY
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FLINT—LIFSEY DISTRIBUTING COMPANY
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LINCOLN—WICKHAM SUPPLY COMPANY
OMAHA—INTERSTATE MACHINERY & SUPPLY CO.
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NEWARK—T. W. BINDER COMPANY
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ALBANY—AIRD-DON COMPANY
BINGHAMTON—W. A. CASE & SON MANUFACTURING CO.
BROOKLYN—COLEMAN ELECTRICAL SUPPLY COMPANY, INC.
BUFFALO—ROOT NEAL & COMPANY
KINGSTON—AIRD-DON COMPANY
NEW YORK—FIDELCO INDUSTRIES, INC.
PLATTSBURG—AIRD-DON COMPANY
SCHENECTADY—AIRD-DON COMPANY
SYRACUSE—CENTRAL SERVICE SUPPLY COMPANY
TROY—AIRD-DON COMPANY
NORTH CAROLINA
CHARLOTTE—HENRY V. DICK & COMPANY
GREENSBORO—HASCO, INC.
RALEIGH—HENRY V. DICK & COMPANY
OHIO
AKRON—PERCY G. HANSEN
CINCINNATI—MERKEL BROTHERS COMPANY
CLEVELAND—DEBES & COMPANY
DAYTON—W. H. KIEFABER COMPANY
TOLEDO—HEAT & POWER ENGINEERING CO
OKLAHOMA
OKLAHOMA CITY—MIDEKE SUPPLY COMPANY
TULSA—MACHINE TOOL & SUPPLY COMPANY
OREGON
PORTLAND—JACOBS & GILE, INC.
PENNSYLVANIA
ERIE—W. A. CASE & SON MANUFACTURING CO.
PHILADELPHIA—VICTOR SALES & SUPPLY
PITTSBURGH—JOSEPH WOODWELL COMPANY
SCRANTON—CENTRAL SERVICE SUPPLY CO.
SOUTH CAROLINA
COLUMBIA—HENRY V. DICK & COMPANY
TENNESSEE
CHATTANOOGA—PEGLAR MACHINERY COMPANY
KNOXVILLE—HENRY V. DICK & COMPANY
MEMPHIS—UNITED REFRIGERATOR SUPPLY CO.
NASHVILLE—ELECTRA DISTRIBUTING CO.
TEXAS
CORPUS CHRISTI—HOLSWORTH EQUIPMENT CO.
DALLAS—ELECTROMOTIVE CORPORATION
EL PASO—J. CARL WHITE COMPANY
HOUSTON—D. C. LINGO COMPANY
LUBBOCK—R & R PARTS & SUPPLY COMPANY
WICHITA FALLS—UNITED ELECTRIC SERVICE CO.
VIRGINIA
NEWPORT NEWS—NOLAND COMPANY
NORFOLK—NOLAND COMPANY
RICHMOND—A. R. TILLER, INC.
WASHINGTON
SPOKANE—REFRIGERATION PARTS SUPPLY CO.
WEST VIRGINIA
CHARLESTON—AIR CONDITIONING & REFRIGERATION SUPPLY
WISCONSIN
MILWAUKEE—REFRIGERATION SPECIALTY CO.
CANADA
MONTREAL, QUEBEC—RAILWAY & ENGINEERING SPECIALTIES, LTD.
TORONTO, ONTARIO—RAILWAY & ENGINEERING SPECIALTIES, LTD.
VANCOUVER, BRITISH COLUMBIA—FLECK BROS., LTD.
WINNIPEG, MANITOBA—RAILWAY & ENGINEERING SPECIALTIES, LTD.

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Catalog of Complete Line Sent on Request

MODERN EQUIPMENT CORPORATION - DEFIANCE, OHIO

What To Check In Servicing Motor Starting Capacitors

Of the many million a.c. dry electrolytic motor starting capacitors now in use, a vast portion are of Mallory manufacture. A majority of these electrolytic capacitors are used in refrigerators, though they are not confined to this field.

These capacitors are used on motors where high starting torque is required, and where the power supply is single phase. In such cases, the capacitor, due to phase displacement, permits the design of a two-phase starting winding in the motor, thereby gaining high torque characteristics. (Fig. 1.) Since electrolytic capacitors should not be left on a.c. continuously, such motors are provided with an automatic switch, which disconnects the capacitor when the motor has reached a given speed. The motor then operates as a single phase motor.

The maximum duty cycle for a.c. electrolytic capacitors is 20 three-second starts per hour, although the number of starts may be varied, if compensated for by a corresponding change in the length of the starting period. Total time for the applied starting voltage should not exceed one minute per hour.

The average starting cycle of refrigerator motors (less than one second, two to five times per hour) obviously represents a rather light service condition, and should not affect the life of the capacitor.

The major causes for capacitor failures in this field are stalled rotors (due to defective mechanical refrigerator mechanism), sticking switches (due to contact difficulties), abnormal starting conditions, and infrequently, actual capacitor defects.

Stalled rotors or sticking switches allow the capacitor to remain on the line until destroyed by the internal heat generated. Increased starting time may be caused by sticky compressor or perhaps dry motor bearings.

Another cause of failure may be improper adjustment of thermostat or refrigerator valves, causing too frequent starting.

Inoperative capacitors are usually short or open circuited. A quick check to determine that the capacitor is definitely inoperative, is to charge it with direct current (through a limiting resistor if necessary). If no discharge is evident on immediate short circuit, the capacitor may be assumed to have lost its effective capacity.

If a.c. current only is available, repeat momentary charging cycle several times to be sure the capacitor actually has received a charge.

When servicing motors where the capacitor has failed, always inspect the switch and be sure it is operating properly before making replacement. Also test starting winding as this may have burned out due to abnormal heating caused by failure of the motor to start.

There are three kinds of switches in general use—centrifugal, magnetic, and thermal. Centrifugal switches cut out as the motor reaches a given speed—magnetic switches cut out when the starting current has been reduced to a pre-determined value.

Since the value of capacity changes the amount of current in the starting winding, care should be taken to use the correct capacity where magnetic switches are employed.

Thermal switches operate on a basis of expansion due to heating, and usually cause the capacitor to stay on the line longer than the other types, especially when the motor is underloaded. Thermal switches provide a safety device for a stalled rotor condition by recycling at a predetermined interval.

Some capacitors are equipped with four terminals, marked "T," "TL," "L," and one unmarked terminal. These letters refer to "Thermostat," "Thermostat and Line," and "Line." "T" and "TL" are dummy terminals being used merely as anchorage points for the motor connections. The capacitor is connected to the "L" and the unmarked terminal.

Fig. 1—Capacitor Diagram

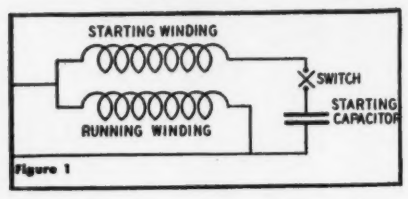


Figure 1

1940 Exports of Household Refrigerators, Commercial Units, Parts & Room Coolers

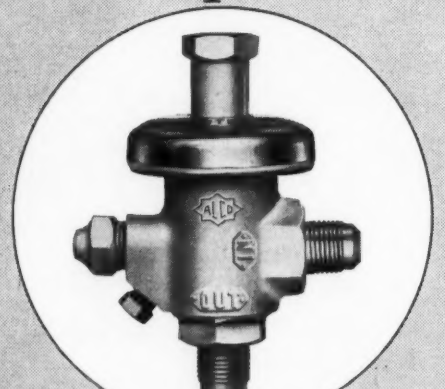
Countries	Electric Household Refrigerators No.	Electric Household Refrigerators Value	Electric Commercial Refrigerators Up to 1 Ton No.	Electric Commercial Refrigerators Up to 1 Ton Value	Parts For Electric Refrigerators Value	Self-Contained Air Conditioning Units and Parts Value
Azores & Madeira Islands	22	$ 2,324	...	...	$ 27	...
Belgium	121	6,167	68	$ 6,083	16,842	$ 263
Bulgaria	...	...	1	935	103	...
Denmark	...	...	...	...	1,754	...
Finland	174	12,387	7	1,433	2,208	...
France	...	...	...	...	17,706	796
Gibraltar	37	3,504	...	...	101	...
Greece	...	...	8	666	1,629	...
Hungary	10	1,128	...	...	2,880	814
Iceland	5	475	4	412	...	...
Ireland	7	670	...	...	3,177	...
Italy	...	...	...	...	24,441	...
Malta, Gozo, and Cyprus	...	...	...	...	5	...
Netherlands	406	33,231	58	7,911	26,226	282
Norway	289	23,944	55	5,655	18,981	...
Portugal	275	25,915	46	3,921	10,393	...
Rumania	9	779	...	...	276	763
U.S.S.R. (Russia)	96	9,284	2	985	5,076	...
Spain	182	17,612	9	2,206	12,361	...
Sweden	500	35,154	93	8,750	74,358	...
Switzerland	330	23,751	5	297	28,881	...
United Kingdom	347	22,792	241	21,862	206,598	3,859
Canada	18,470	1,106,865	1,603	185,276	1,979,129	47,574
British Honduras	2	278	1	100	360	...
Costa Rica	441	46,782	52	7,434	6,998	1,919
Guatemala	495	51,286	131	24,421	3,960	1,040
Honduras	194	18,358	11	1,953	2,776	300
Nicaragua	223	22,576	13	3,885	958	50
Panama, Republic of	1,323	128,729	353	56,784	28,687	6,282
Panama, Canal Zone	2,147	162,798	362	65,495	30,082	40,560
Salvador	302	29,825	33	6,190	2,819	448
Mexico	6,941	605,367	532	80,388	81,613	17,095
Miquelon & St. Pierre Is.	1	99	...	...	4	...
Newfound. & Labrador	130	11,115	24	3,271	2,730	2,782
Bermuda	238	21,963	13	1,609	4,998	389
Barbados	22	1,717	...	...	767	...
Jamaica	187	20,856	7	1,528	3,278	...
Trinidad and Tobago	269	24,048	18	3,061	6,103	1,449
Other British West Indies	244	22,502	39	3,665	3,647	76
Cuba	6,143	540,998	1,036	98,571	82,626	10,524
Dominican Republic	509	46,095	34	5,982	3,571	1,804
Netherlands West Indies	630	64,601	154	22,966	16,424	2,141
French West Indies	34	2,878	...	...	717	197
Haiti	192	18,622	12	1,252	4,357	...
Argentina	3,838	186,306	934	92,229	806,889	30,010
Bolivia	230	21,590	...	...	1,461	465
Brazil	14,017	1,131,664	1,260	94,600	160,540	82,054
Chile	1,538	144,391	93	9,781	43,430	572
Colombia	3,232	332,854	493	85,799	34,396	10,886
Ecuador	285	27,999	13	1,783	5,185	1,844
British Guiana	78	6,841	4	310	1,963	...
Surinam	54	4,601	7	986	638	2,009
Paraguay	314	29,191	15	940	1,107	...
Peru	612	56,657	46	7,860	16,869	6,462
Uruguay	932	68,025	124	10,070	26,878	422
Venezuela	6,181	581,156	860	131,234	50,944	21,897
Aden	11	943	2	657	379	271
Saudi Arabia, Yemen, etc.	37	3,662	27	3,926	1,636	2,962
British India	2,525	198,362	132	13,447	80,664	103,691
British Malaya	2,315	211,649	125	14,743	34,491	48,038
Ceylon	192	15,351	...	...	6,883	416
China	528	48,852	10	2,694	6,496	2,527
Burma	117	8,746	22	2,060	8,136	3,533
Netherlands Indies	2,388	213,955	329	55,436	71,865	34,116
French Indo-China	521	40,422	1	646	4,195	4,251
Hong Kong	506	45,646	131	21,390	8,557	18,265
Iraq	139	11,075	9	1,022	24,490	...
Japan	16	1,980	1	110	30,310	...
Palestine	702	55,418	97	11,488	15,454	3,881
Iran (Persia)	66	5,138	1	534	1,772	172
Philippine Islands	1,992	176,278	205	35,776	44,783	18,692
Thailand (Siam)	718	58,444	20	1,987	3,669	204
Syria	17	1,429	3	437	469	...
Turkey	276	23,613	190	18,507	10,804	...
Other Asia	11	1,146	2	160	1,094	8,070
Australia	129	9,254	20	1,278	182,574	6,690
British Oceania	32	3,114	...	...	1,674	369
French Oceania	21	1,444	1	96	359	...
New Zealand	2,112	107,748	165	11,549	138,265	...
Belgian Congo	387	36,485	2	389	4,428	...
British East Africa	153	14,515	...	...	4,593	655
Union of South Africa	11,309	877,197	634	67,455	248,100	10,703
Other British S. Africa	321	26,180	22	4,212	5,473	...
Gold Coast	111	9,982	...	...	2,904	...
Nigeria	4	371	...	...	952	...
Other British W. Africa	61	5,903	2	491	279	...
Egypt	443	42,530	55	6,409	8,321	21,232
Algeria	43	3,177	...	...	499	431
Tunisia	20	1,361	...	...	645	...
Madagascar	...	...	...	...	20	203
Other French Africa	5	398	2	419	640	...
Liberia	33	3,786	...	...	86	...
Morocco	13	927	3	648	1,741	495
Mozambique	433	37,736	13	1,798	8,840	99
Other Portuguese Africa	80	7,016	12	1,420	993	206
Canary Islands	36	3,605	4	526	449	142
Other Spanish Africa	1	185	...	...	...	...
Total	**102,082**	**$8,073,763**	**11,116**	**$1,352,249**	**$4,838,909**	**$588,347**
Shipments to Alaska	608	61,490	106	22,818	14,383	612
Hawaii	9,178	856,571	1,351	193,488	106,394	14,148
Puerto Rico	4,544	409,947	996	153,852	64,540	18,421
Virgin Islands	106	10,254	26	6,277	1,760	...

Announcing the New

ALCO EVAPOTROL

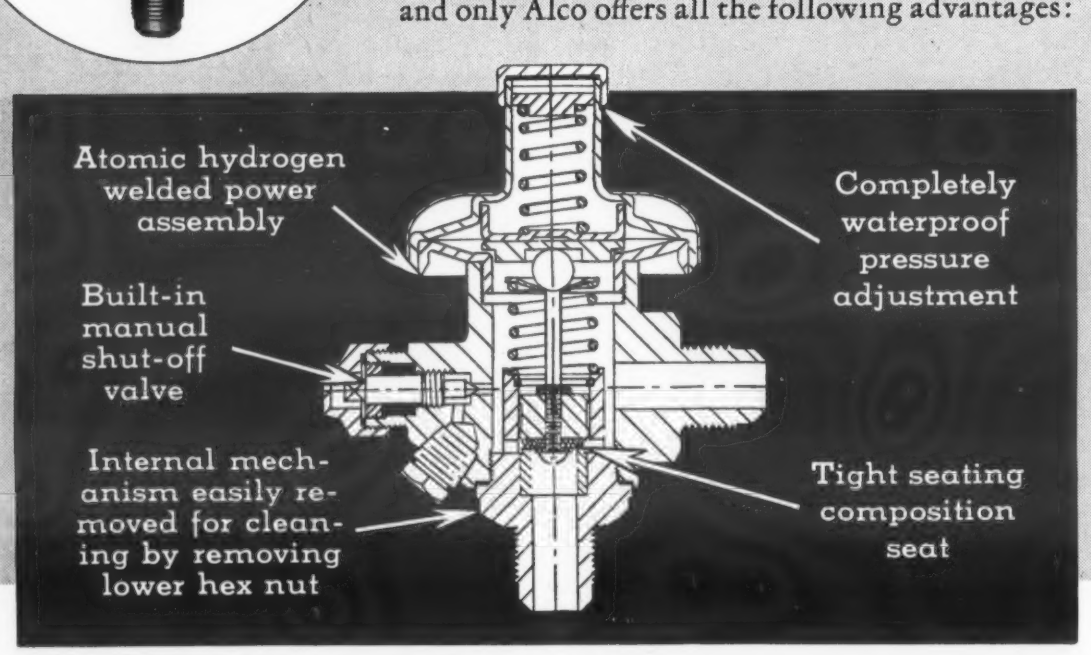
Small Capacity

Evaporator Pressure Regulator



With the Evapotrol, Alco now makes available the advantages of the exacting and rapid performance of Alco's Evaporator Pressure Regulators in a small size, small capacity valve.

The Evapotrol accurately maintains evaporator pressures regardless of sudden load changes or fluctuations in suction pressure. It is compact in design, light in weight and simple in construction, and only Alco offers all the following advantages:


Atomic hydrogen welded power assembly
Built-in manual shut-off valve
Internal mechanism easily removed for cleaning by removing lower hex nut
Completely waterproof pressure adjustment
Tight seating composition seat

In addition, the Evapotrol is highly sensitive in operation, maintaining evaporator pressures within the closest limits. It offers a valuable aid to the efficiency and close control of any installation.

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Engineered Refrigerant Controls

THE STANDARD OF THE INDUSTRY

Coast Reconditioning Plant Grows as Dealers Make Profits on Trade-ins

LOS ANGELES — Reconditioning of traded-in refrigerators, both open and hermetic units, has proved a highly successful business for Electrical Appliance Service Corp. here, and more than 240 appliance dealers have used this firm's services to turn the "trade-in headache" into a profitable venture.

The reconditioning firm, which was established at 2828 Newell St. in November, 1939 by William Vogel, turned out 1,200 refrigerators in 1940, unconditionally guaranteed for 90 days. Mr. Vogel, an old-time service man, now employs 40 in his plant, and maintains $45,000 worth of refrigerator parts, representing 17 manufacturers.

Major appliance dealers in this territory find trade-ins a profit item under Mr. Vogel's plan, for confidence in these reconditioned units has been established in the public with the result that there is a big volume in used refrigerators.

All work of the firm is done strictly by contract. Dealers sign contracts to have all their work handled by Electrical Appliance Service—at a standard rate of $20 for a one-door refrigerator up to 10 cu. ft., or $25 for a hermetic unit. Units are delivered to the plant by the dealer and called for when finished—all work being strictly cash.

At the receiving dock each refrigerator is examined and an estimate made for all repairs. If the box does not appear completely saleable, the firm turns it down and informs the dealer why. If accepted, the refrigerator is completely reconditioned, including new motor parts, refinishing of interior and exterior, new aluminum, gaskets, shelving, and complete re-enameling.

Reconditioning is handled on an "assembly line" basis, and only one to three days are required for a job. Steam cleaning equipment, painting equipment, re-tinning tanks, and a complete electrical shop make this quick service possible. The 90-day guarantee covers a 20-mile circle around Los Angeles. During 1940 the firm had to make few service calls, and only two parts had to be replaced.

A $10,000 shop has been set up to recondition hermetic units. These units are given a new armature, new refrigerant, and even a new motor, if necessary. While thus far there hasn't been much reconditioning of this type of unit, Mr. Vogel believes that sooner or later hermetic units will be coming into his plant in quantity.

No advertising has been used by the firm, which depends solely on word-of-mouth advertising by the dealers themselves. This year Mr. Vogel expects to turn out at least 1,500 jobs. The company frequently has a "waiting list" of 25 dealers.

How To Follow Service Accounts Which Are Not on Contract Basis

ST. LOUIS — A simple prospect follow-up system is used by the North Side Refrigeration Service Co. to bring in new accounts, and maintain the loyalty of customers already on the company's books. The concern specializes in air conditioning service.

North Side Refrigeration Service, an authorized Frigidaire service agency, has been servicing all types of air conditioning equipment, from small room coolers to large central station systems for the past six years. Because the firm does not undertake any form of "contract service" whereby operation is guaranteed at a flat rate, it has experienced a turnover among customers.

In 1939 Lloyd Goodwin, manager of the firm, developed a follow-up system which has kept the firm's old customers "in the fold" and has also produced at least 25 new customers per year. Under the system, a list of all air conditioning jobs installed in St. Louis is made from the permits issued by the city and from frequent contacts with firms installing the systems.

As soon as an air conditioning system is installed in the city, it goes into the file in duplicate; first on an orange file card, and is then entered on a master list. Orange cards are used for air conditioning service prospects, green cards for commercial refrigeration, and cream colored cards for home appliances and refrigerators.

From the master list Mr. Goodwin can tell which jobs are being handled by his firm. Salesmen are sent out to call on prospects, and if a service call results, the orange file card is ready to begin keeping records on the account.

In the fall Mr. Goodwin sends out direct mail to some 2,000 potential accounts, offering to pump the system down for the winter for a flat rate. Spring "start-ups" are solicited by letter, in the same manner. Two letters are used, one for old customers, and one for new accounts.

These letters are sent out in accordance with weather conditions. Before hot weather arrives in the spring, letters are sent to about 1,000 old customers. Letters are sent to prospects during the first week of hot weather. Spreading the mailing in this way has eliminated part of the spring rush.

If prospects do not respond to the letters within six days, they are then solicited by telephone or by personal calls. This follow-up has developed many first calls which turn into regular accounts and the twice-a-year mailings have served to keep most of the old customers on the books.

A "reminder card" which serves the double purpose of giving service men a "toe in the door" to prospects and providing "on the spot" advertising has been developed by Mr. Goodwin.

This durable 7 x 6 inch card stresses the money-making importance of commercial refrigeration, gives five suggestions for bettering the equipment's performance (periodic oiling, cleaning condenser, etc.), and lists the firm's address and day and night telephone numbers.

When some accounts seem to be lagging, or new ones are wanted, the firm's four service men call on prospects, requesting that they be permitted to tack the card up near the refrigeration equipment, where it will be valuable to the prospect in case of emergency. Such permission is usually granted, and ultimately leads to service calls.

Armstrong Cork Expands Advertising Dept.

LANCASTER, Pa.—Expansion of the functions of its advertising department to include all promotional activity, and the appointment of M. J. Warnock as director of advertising and promotion and E. Cameron Hawley as his assistant, has been announced by Armstrong Cork Co.

Mr. Warnock joined the Armstrong organization in 1926, spending the following three and one-half years in the Seattle district as a salesman and later as district manager. He became an assistant manager of the floor division in 1930, and earlier this year was named assistant general sales manager. In his new position, Mr. Warnock succeeds Mr. John P. Young, who has resigned.

Mr. Hawley joined the Armstrong organization in 1927 as a member of the advertising department. He was later assistant sales manager of the corkwood division, director of commercial research, and since 1936 has been director of the bureau of retail merchandising for the floor division.

Servel's Field Forces Hold Spring Meeting

EVANSVILLE, Ind.—District managers, field service engineers, and members of the Servel factory sales and service organization participated in a spring sales conference conducted here last week.

Sales Manager E. A. Terhune presided at the daily meetings, which were held in the factory school rooms. Other speakers on the week's program included Harry Newcomb, general manager; W. J. Aulsebrook, assistant sales manager; C. E. Ploeger, chief engineer; P. B. Reed, service manager; and O. J. Dail, manufacturing superintendent.

Texas Fair May Get Refrigeration Show

DALLAS, Tex.—Plans for a refrigeration and air conditioning show to be held annually in connection with the Texas State Fair are being discussed by members of the Lone Star chapter of Refrigeration Service Engineers Society. J. R. Sparkman is chairman of a committee which has conferred with members of the Dallas chamber of commerce and the fair association on the proposed show.

Motor car dealers are reported to have informed the show management that, due to production curtailments resulting from the defense program, they would not stage a large exhibit at this year's fair. Plan is for the refrigeration interests to take over the space formerly occupied by the automotive exhibitors.

The refrigeration exhibition, if held, would be modeled closely after the All-Industry Shows held annually in Chicago, with products by manufacturers in the South and Southwest.

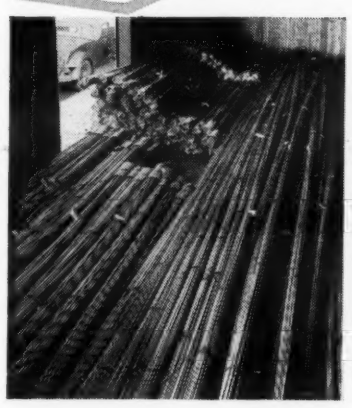
Mayflower Sales Gets Scott Field Contract

ST. LOUIS—Mayflower Sales Co., Norge distributor here, has been awarded the contract for a water cooling system for Scott Field, army radio and groundwork training school at East St. Louis, Ill.

For more reasons than ever fedders continues to use ALL-COPPER refrigeration SURFACE

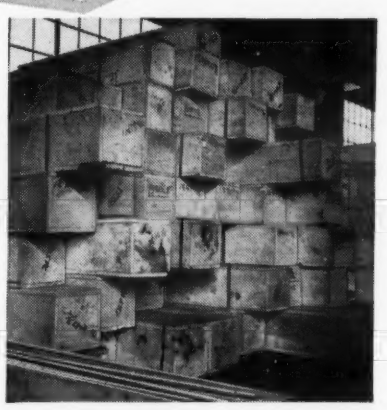
(as for the past 45 years)

REASON No. 1



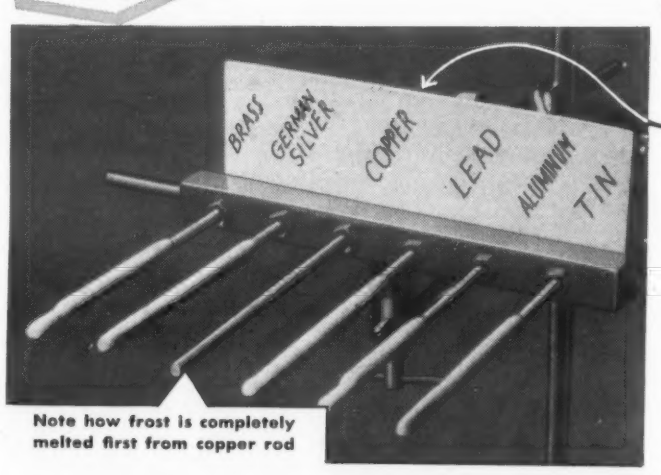
Buying in carloads is a usual occurrence at Fedders where production figures run into the millions as leaders in commercial refrigeration. Large purchases, greater production, most modern efficient plant methods produce savings that give you **COPPER at NO EXTRA COST.**

REASON No. 3



Huge stocks of heat transfer's most precious metal—**COPPER**—is on hand in Fedders large materials store room for immediate product manufacturing and delivery.

REASON No. 2



Note how frost is completely melted first from copper rod

Here's why Fedders has stood by **COPPER** for 45 years and still does. **COPPER** is the most efficient and dependable commercial heat transfer known. Don't take our word for it! Tests shown in above photograph prove **COPPER** to be the quickest metal to transmit heat except non-commercial gold and silver. Yes, all the facts point to **COPPER** for refrigeration.

REASON No. 4 The Facts!

THERMAL CONDUCTIVITIES
k=B.t.u. in./hr./sq. ft./degrees F

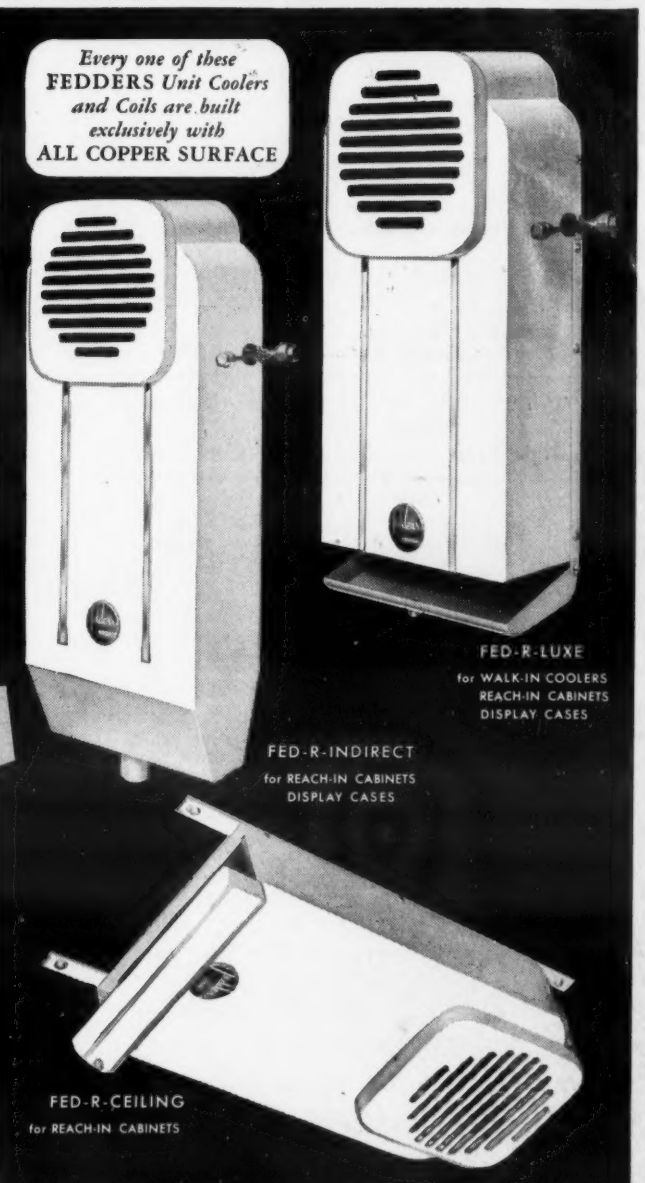
Substance	Temp. °F.	k
Copper (pure)	212	2664
Aluminum	212	1428
Brass (60-40)	212	828
Zinc	212	744
Tin	212	408
Steel (mild)	212	396
Cast iron	212	336
Lead	212	237
German Silver	212	200
Ice	32	15
Sandstone	104	12
Dolomite	122	12
Concrete (stone)		6
Oak	122	3
Diatomaceous Silica (natural)	212	0.6
85% Magnesia	212	0.49

Above chart from engineering hand book proves still further that **COPPER** is the best commercial metal for refrigeration surface. **PLAY SAFE...SPECIFY...BUY FEDDERS FROM NOW ON.**

FEDDERS MANUFACTURING CO., BUFFALO, N. Y.

Atlanta, Boston, Chicago, Cincinnati, Dallas, Detroit, Los Angeles, New York, Philadelphia, St. Louis, Hamilton, Ont.

Every one of these FEDDERS *Unit Coolers and Coils are built exclusively with* ALL COPPER SURFACE



Play Safe... Specify... and Buy fedders

OVER 100 UNIT COOLER MODELS

If you have not already received FEDDERS 1941 REFRIGERATION CATALOG ask your Wholesaler or write us.

Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

F. M. COCKRELL, *Founder*

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A Sane Look At Plastics

THIS page has often been accused of being "plastics crazy." It has even been necessary to assure a few detractors that neither the editor nor any of his staff own any shares in any corporation which makes or molds plastics.

But since the first of the year we have continued to harp on the fact that few men in this industry seem to realize the seriousness of the materials-shortage situation which faces us.

Recent shortages and priorities decrees on aluminum, nickel, stainless steel, and neoprene have begun to hit the industry in a few touchy spots, and have vindicated our warnings of a few months previous. But friends, "you ain't seen nothin' yet."

1942 WAR PRODUCTION WILL BREAK RECORDS

We are assured by our Washington sources that in 1942 the production of war machines by the United States will far surpass anything the world has ever seen (despite the gloomy forebodings of some of the syndicated columnists). And when that war production gets rolling, the quantities of metals the program will eat up should stagger the imagination.

Even Messrs. Knudsen and Stettinius themselves confess themselves unable to predict the quantities of raw materials which will be fed into the voracious maws of war industries. About the only answer they can give is: "a helluva lot."

So, this page will reiterate its thesis that: "If you are using metals in your production now, be prepared to replace them with other substances." It may not be necessary to use these replacements, but preparation now may save grief later.

Plastics, of course, are obvious replacements for metals. But, say many, they aren't so good for some of the purposes of this industry. Maybe so—that's where your research program comes in. Or, say others, plastics molding is limited to articles of small size.

(In this connection, an official of Monsanto Chemicals—one of the leading producers of plastics—pointed out that the Philco evaporator is the largest piece of extruded plastic now made.)

However, if argufiers insist on limiting the possibilities of plastics to the present confines of injection molding, they show limited imagination. And, we predict, they will be knocked off their perch when they see what some companies will be doing next year with *adhesion* molding.

In this connection, a very sane presentation of what plastics can do and can't do has just been written for us by H. S. Spencer of Durez Plastics & Chemicals, Inc. We quote:

"The call has gone out 'use plastics,' and the plastics industry is doing its utmost to meet industry's demand for materials through the engineering and technical services of its research staffs throughout the plastics industry—the technicians of the material suppliers, custom molders, and fabricators.

"Plastics are not a cure-all. They require study for suitability to the job at hand. There are a dozen groups of plastics differing in physical characteristics. They cannot be used at random.

PLASTICS INDUSTRY READY TO HELP

"The plastics industry, representing both material manufacturers and experienced custom molders, is well qualified to render expert service. It is their desire that these services and their materials and the use of them reflect credit upon the plastics industry.

"Plastics will definitely help out the shortage of other materials. In many instances manufacturers are learning that plastics do a better job.

"A large manufacturer using die-cast pieces, recently investigating plastics, was asked why he had never made these parts of plastics before, when he had used plastics for a number of years on some of his products.

" 'Well,' he said, 'we don't know. They've always been die castings and I guess we have always thought of them as die castings, and the change would cost money.' In actual figures his production through the use of plastics will create a real and definite saving to him.

"Materials used in certain phases of defense work have definitely failed. Today, specifications for insulating material, both in our own and foreign armament programs, involving millions of pounds of plastics, will be a permanent fixture.

"Plastics are not serving here 'in lieu of another' but because they will do the job that other materials have definitely fallen down on in actual combat service.

"Plastics were no substitution in the manufacture of distributor heads for automobiles and airplanes. They solved a definite problem and have provided a definite service over a long period of years.

"Plastics were not a substitute for telephone receivers. Investigation and tests over a long period of time prove them superior to materials formerly used.

"Plastic resins have made possible a superior grade of plywood, speeding construction, proving superior in certain types of boat construction.

WATER PUMPS MADE FROM PLASTICS NOW

"Today there are plastics that exist that are sufficiently strong and unaffected by water that such an intricate device as a bilge pump is manufactured from them—pumps that are not affected by electrolytic action, that are immune from corrosion; pumps that will stand up under the hardest wear and tear of rigorous boating service.

"Plastics have improved flush valves for water closets. Metal pistons corroded and caused the rubber washers to deteriorate, demanding frequent repairs. This problem was solved through the use of plastics. Tests involving 75,000 actions of the parts found the plastics unaffected.

"Another example is in the manufacture of sprinkler pipes, not to carry water but to carry compressed air at a pressure of 150 pounds. When the fire occurred the sprinkler head let go, the air pressure would drop, and a mercury switch close and turn the water into the pipes.

They'll Do It Every Time . . . . . By Jimmie Hatlo

THIS BIG OAF IS ALWAYS SO ANXIOUS TO GET AWAY FROM THE SWEATSHOP THAT HE'S HALF-WAY HOME BEFORE THE WHISTLE STOPS BLOWING —
TOOT!
SO THEN HE SPENDS THE REST OF THE NIGHT TALKING ABOUT THE JOINT
— SO I LOOKED HIM RIGHT IN THE EYE AND I SAYS, "WHO'S RUNNING THIS LATHE, ANYHOW?" I SAYS, "PERSONALLY, I DON'T THINK YOU KNOW A COTTERPIN FROM A BREAST-DRILL"—
THANX TO BETTY RIESS CHICAGO
4-14
Copr. 1941, King Features Syndicate, Inc., World rights reserved.

"Engineers found that plastics, being dielectric, unharmed by water, mercury, and heat—specifications set up by the Underwriters—were the only satisfactory materials to solve the problem.

"So, while plastics will definitely help out in a shortage of other materials, they will in many instances, as manufacturers will learn, do a better job—not a substitute job but one of improvement. True, of course, the plastics industry has been trying to tell them this for a decade, but organizations brought up in other materials had to find out the superiority of plastics through present-day emergencies.

"Surveys made of the women of America have definitely told manufacturers that they prefer plastic closures on bottles and tubes. They have provided a convenience and to manufacturers who have used them frequently they have been an aid in increasing sales. They are not a substitution but an improvement.

"Plastics will not solve all problems. They have experienced misuse. Through their ramification of various formulas they are intricate to an extent in their application . . . as, which plastic for what? . . . In the hands of the inexperienced they have at times proved costly to the manufacturer attempting to make use of them.

EXPERIENCED MEN CAN GUIDE NEW USERS

"But there are plenty of organizations and men in the plastics industry and the fabrication of plastics who have been tried and tested for a period of years and can correctly guide the prospective users as to the limitations of their own products and a general knowledge of all materials within their industry.

"This knowledge of plastics and plastics fabrication is confined to no one organization but to these tried and tested material suppliers and custom molding organizations who, knowing their business, are not carried away by the present wave of enthusiasm for plastics or the public's consciousness of what they have.

"In the forming of plastics into finished parts—by compression, injection, or transfer molding—the tools and dies play a very important part. A lack of knowledge in plastics or the appreciation of the part the mold maker must play is not only costly but it can make for complete failure.

"Manufacturers must realize that the change-over from other materials to plastics is not an overnight job. It almost invariably means redesign, as the physical characteristics of plastics are different from the materials they have been using.

DESIGN, TOOL WORK REQUIRE TIME

"The design and engineering of parts or products to be made in plastics requires time. Tools and dies in themselves require time to plan and manufacture and must be right if successful economic production is to be secured.

"If industry is not fully informed about plastics, that failure can be put up to us of plastics. But those of us who have been selling plastics know that the education of manufacturers and their engineers has been and still is a big job.

"Also there are many plastics, very different in their respective characteristics, and what would be an ideal application for one is unsuitable for another, as in the instance of the bilge pump referred to here, for example.

"While the phenolics, as Durez, Resinox, Bakelite, etc., are conceded to be the industrial plastics, they can not be interpreted as suitable for all industrial uses.

"Plastics have moved ahead fast. They have caught the public's imagination and since the armament program industry has looked upon them as cure-alls, and unfortunately the news and general writer has frequently, through lack of information or a desire for the sensational, over-stated—and so the manufacturer of everything or anything who sees difficulties in securing his present raw materials decided to try plastics, with the result that manufacturers of skis, fireless cookers, heavy machinery, inquire as to the molding of their products.

"Plastics will never put the metal or ceramic people out of business, as some are inclined to intimate, any more than rayon will completely replace silk, 'wetting agents' eliminate soap, plastic or paper containers eliminate glass.

"Plastics will find many new, logical uses as they have in the past and these logical, practical uses will be permanent business; and all materials, as ever, will in the long run have to be sold on price, service, and performance.

"Plastics have achieved many remarkable and practical results. Their future is tremendous, but they must be approached—not as so much of the publicity concerning them has implied, as something of magic or a cure-all for all ailments—but as materials in their own right and with their own purposes."

LETTERS

HERE'S ONE FOR THE ENGINEERS

Union Electric Co. of Missouri
315 North Twelfth Blvd.
St. Louis, Mo.

Sirs:

Will you please have sent, marked for the attention of the undersigned, three copies of AIR CONDITIONING & REFRIGERATION NEWS, April 9, 1941 issue.

We found this edition most interesting and would like to have these copies for distribution to our Engineers.

CHIEF CLERK, SALES DEPT.

'MANUALS VERY USEFUL IN MY WORK'

Buena Vista, Pa.

Sirs:

Please send by C.O.D. manuals No. C-2 and C-3 of commercial refrigeration. To date I have bought manuals SF-1, SF-2, and manual No. 4 on household refrigeration and also specifications manual No. S-1 which I have found them very useful in my work.

M. SPINELLI

For Dealers & Distributors

59 Columbus Dealers Join In Drive

COLUMBUS, Ohio—To open their spring refrigeration drive 59 Columbus dealers, five distributors, and the utility recently cooperated in publishing a full newspaper section of nine pages in the Columbus Citizen.

Twelve brands featured included General Electric, Gibson, Kelvinator, Norge, Westinghouse, Montgomery Ward, Leonard, Frigidaire, Crosley, Hotpoint, Philco, and White House (Cussins & Fearn).

Stories and photographs about products and dealers accompanied advertisements. Dealers pictured in personality stories were Charles B. Temple of Ohio Gas & Electric Co., Crosley dealer; J. R. Jacobs of J. R. Jacobs Co., General Electric; and D. E. Jacques, Jacques Furniture Co., Hotpoint.

Three downtown shops — C. C. Robinson Co. (G-E), Emswiler's (Frigidaire), and Modern Appliance Shop (Kelvinator)—were featured in photos.

Fifty-seven of the advertisers were from Columbus and eight from nearby towns. Several new refrigerator advertisers outside of the appliance shop field included: Buckeye Radio Laboratories, Simpson-Barton Tire Co., Margulis department store, and Taylor Gulf service station.

Newspaper Advertising Opens Spring Campaign

HARRISBURG, Pa.—Special sections in three local newspapers opened the spring sales drive of refrigerator dealers here. Advertisements were interspersed with numerous feature articles on refrigeration.

Five pages in two papers on successive days were inserted by: Bodwell Co., Bushey-Whitcomb, Caplan's, Harrisburg Gas Co., Hoover Furniture Store, Hoover's Radio & Supply Co., Joe the Motorists' Friend, Levy & Gross, Miller's, Pomeroy's, Inc., J. E. Shenk & Son, C. M. Sigler, Inc., Troup Bros., J. H. Troup Music House, and Westinghouse Store.

On the third day in the third paper four pages were sponsored by: Hall's Electric Stores and Spangler's Music House, in addition to Bodwell, Caplan's, Hoover Radio, Joe, Levy & Gross, Miller's, Pomeroy's, Shenk, Troup Bros., and Troup Music House.

Tuthill Pump Names New Distributors

CHICAGO—New distributors for the line of ice cream freezing equipment manufactured by Tuthill Pump Co. have been appointed in the following territories: Butte, Mont.; Salt Lake City; Sacramento, Calif.; San Francisco; Los Angeles; Oklahoma City, Okla.; Columbia, Ky.; Lansing, Mich.; Jackson, Miss.; Cleveland; Roanoke, Va.; St. Petersburg, Fla.; Anderson, S. C.; Fayetteville, N. C.; Baltimore; Mansfield, Pa.; and Rochester, N. Y.

E. B. Morse Takes Over Frigidaire Line

ROCKINGHAM, N. C. — E. B. Morse, hardware and furniture dealer here, is now handling the complete Frigidaire line of appliances formerly sold here by J. T. Byrne. Raymond W. Goodman is in charge of appliance sales.

THE LITTLE LADY "CATCHES ON"

...TO WHAT'S BEHIND DEPENDABLE REFRIGERATION

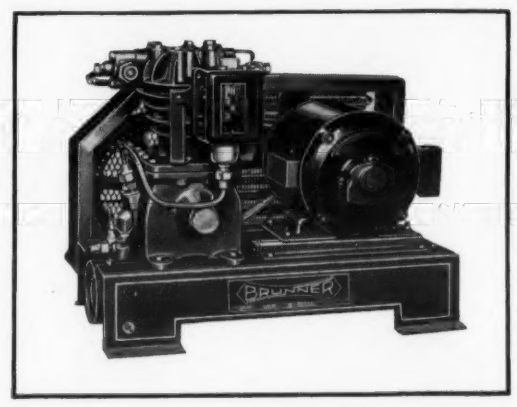
Brunner refrigeration units are designed and built to give business a lift, and to make that lift permanent by providing efficient, uninterrupted and economical service year in and year out—the kind of service that wins and keeps customers.

The thousands of Brunner units now in operation back up this claim. Case manufacturers have found a telling sales point in emphasizing that their products are Brunner-equipped. More and more the name of Brunner has come to stand for top quality in refrigeration.

In design, selection of materials and precision manufacturing, every Brunner unit—from the ¼ h. p. to the 25 h. p. heavy duty plant—represents the lessons learned from years of research and practical experience. Write for catalog. Brunner Manufacturing Co., Utica, N. Y., U. S. A.

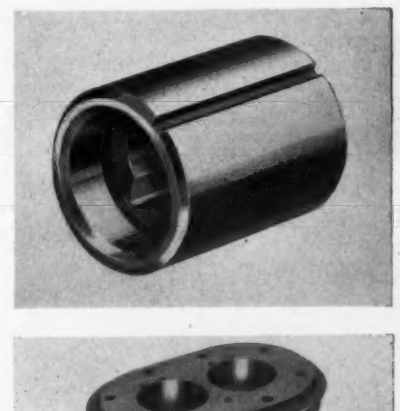
1 TO KEEP CUSTOMERS coming back for more is the "behind-the-scenes" job of the Brunner unit. Smooth, quiet and efficient in performance. Dynamically balanced parts assure vibrationless, wear-resistant service, low operating cost. All parts guaranteed to be free from defects in material or workmanship.

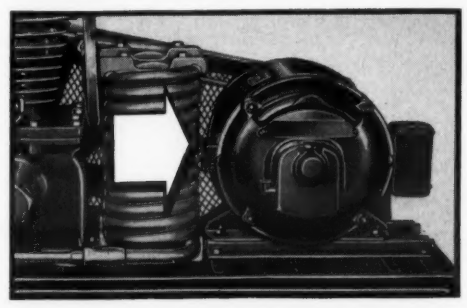
2 SCIENTIFIC PROOF of excellence. Every Brunner unit carries the Underwriters' Laboratories approval and the U. L. Seal.



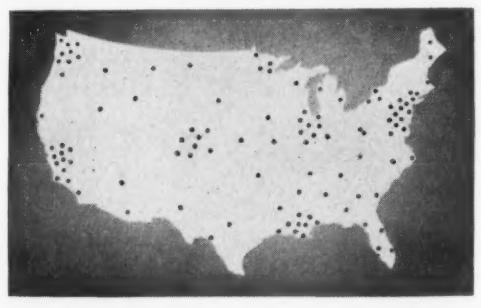
3 COMPACTNESS is an outstanding asset of every Brunner unit. Releases extra room for display and storage. Dependable controls make operation easy.

4 INTERCHANGEABLE—The all-in-one valve assembly, bronze bearings, silent eccentric drive, wear ever shaft, bellow seal assembly, cylinder heads and all other moving parts are precision machined. New parts are perfectly interchangeable with original units, permitting important service savings. Every Brunner unit is thoroughly tested to make sure its performance will live up to the standard set by Brunner—the fastest growing name in the refrigeration industry.





5 OVERLOAD PROTECTION... Automatic reset integral overload protection (up to 1 h. p. incl.) prevents motor from burning out. Continuous refrigeration is assured, thus preventing spoilage.



6 EXPERT FIELD engineers are stationed in all parts of the United States. They are available for consultation in the solution of any refrigeration problem. Their practical experience will prove invaluable.

GET THESE MONEY SAVING FACTS

BRUNNER REFRIGERATION

● SEND for the "inside story". Brunner superiority illustrated point by point.

R. S. Green Takes on Philco Appliances

TURBEVILLE, S. C.—R. S. Green has taken on the Philco line of appliances, along with Easy washing machines, and Cavalier ranges.

Covington Opens Branch

CLIFTON FORGE, Va.—Covington Maytag Co. has opened a new branch store here which will handle Hotpoint and Maytag appliances.

Macdonald Takes Deepfreeze

ALDIE, Va.—Lea Macdonald has been named dealer here for the Deepfreeze frozen food storage unit.

Dole Opens N. Y. Office

NEW YORK CITY—Dole Refrigerating Co., Chicago, has opened a New York office at 601 W. 26th St.

Krich-Radisco Goes on Air With 3 Weekly Programs

NEWARK, N. J.—Krich-Radisco, Inc., has gone on the air with a 15-minute "Make-Believe Ballroom" recorded program three times weekly in the interests of Kelvinator and Bendix equipment. The program, announced by Martin Block, is heard over WNEW from 10:45 to 11 a.m. on Tuesday, Thursday, and Saturday. Spot announcements also are being broadcast over WNEW at 8:45 and 11:59 a.m. daily.

Joseph Greber Opens New Appliance Shop

BALTIMORE—Joseph Greber has opened a major appliance and radio shop at 3729 Eastern Ave. here under the trade name of Highland Music & Appliance Co.

Ford Radio Shop Named Zero-Plate Dealer

DALLAS, Tex.—Ford Radio Shop has been appointed dealer in the Oak Cliff section for Zero-Plate refrigeration equipment.

Kimmey Sets Up Branch

ALBANY, N. Y.—H. B. Kimmey Co., Inc., with headquarters here, has established a branch at 59 Bridge St., Plattsburg, N. Y.

Norge Names Hall

ARLINGTON, Va.—Hall Furniture Co. has been appointed Norge dealer here.

Westinghouse To Johnson

DUNN, N. C.—Johnson Cotton Co. has taken on the Westinghouse appliance line.

1940 Appliance Sales Rose In Rural Ga.

ATLANTA—Considerable gain in sales of electric ranges, refrigerators, and water heaters was chalked up during 1940 in 28 cooperating towns and three REA lines served wholesale by Georgia Power Co.

Refrigerator sales totaled 2,486, compared with 1,849 in 1939; ranges, 1,179 compared with 919; and water heaters, 423 compared with 262. In 1939 cooperating towns numbered only 23.

Best overall selling job on the three appliances was done by East Point, Washington, Jackson, and Cartersville, with Griffin, Dalton, and La Grange close behind. Leaders in refrigeration sales were Griffin and Jackson, Forsyth and Douglas led in range sales, while the outstanding water heater towns were East Point and Jackson.

92 Pages of Practical Information for Refrigeration Engineers

DUPONT REG. U.S. PAT. OFF.

METHYL CHLORIDE MANUAL

This new Methyl Chloride Manual contains chemical, physical, physiological and refrigerating data . . . tables of thermo-dynamic properties . . . engineering information . . . handling and servicing methods. Send for your free copy today!

For information about nearest source of supply, write to
THE R. & H. CHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
or National Ammonia Division
Frankford P. O. Philadelphia, Pa.

What Makes Locker Plants Good - - or Bad

'Grading Plan' Is Developed To Rate Refrigerated Locker Plants

Joint Committee Also Suggests Design Factors That Should Be Standardized

DES MOINES, Iowa—Copy of a locker plant score sheet or rating chart to be put in use by the Iowa Department of Agriculture, and a transcript of some pertinent suggestions as to plant design and construction problems which should be considered, are contained in the third and latest report of Wayne Carver, secretary of the Joint Committee on Frozen Food Locker Plants.

The score sheet was worked out by Mr. Carver and B. O. Brownlee of the dairy and food department of the Iowa Department of Agriculture. It provides for grading plants on 10 major points—receiving room, chill room, processing room, sharp freezer, locker room, slaughter house, country slaughtering facilities, scales, general appearance of exterior, and management and personal appearance of employes.

Most of these points are divided into a number of sub-classifications. At the right of the sheet are two columns—one in which an arbitrary perfect score for each sub-classification is given, and one in which space is provided for marking down the score of the plant being graded.

A set of instructions to aid inspectors in the use of the score sheets in grading plants also is available.

The suggested topics for discussion by the sub-committee on plant design and construction were offered by E. C. Lloyd of Armstrong Cork Co. They included such factors as the proper kind of doors for freezer rooms; standardized plant layouts for air blast, coil, or plate refrigeration; formula for determining the proper size of the chill room; recommendations by equipment manufacturers as to best type of cooler room refrigeration, so that a standard room height may be fixed; best height for overhead trackage; standardized branch plant designs; best location for lockers in "walk-in" plants; killing floor layouts; and designs for curing rooms and smoke houses.

The outline which will be used by Iowa's 27 locker plant inspectors for grading plants, and which will be made available to any other states desiring to use it, follows:

I. Receiving Room
   1. Are openings properly screened
   2. Hoisting equipment
   3. Appearance of walls
   4. Floors
   5. Drain
II. Chill Room
   1. Walls
   2. Floors
   3. Odor condition
   4. Temperature
   5. Condition of meat hangers
   6. Are carcasses hanging clear
III. Processing Room
   1. Walls
   2. Floor
   3. Light
   4. Ventilation
   5. Tools and equipment (electric meat cutter, grinder, slicer, blocks, stuffer, hand tools, processor, lard kettle)
   6. Hot water facilities
   7. Screens
   8. Smoking prohibited in processing room
   9. Processing room separated from reception room
IV. Sharp Freezer
   1. Walls
   2. Floors
   3. Odor condition
   4. Temperature
V. Locker Room
   1. Walls
   2. Floor
   3. Condition of lockers
   4. Odor condition
   5. Temperature
VI. Slaughter House—Attached or Separate
   1. Drainage
   2. Walls
   3. Light
   4. Ventilation
   5. Steam
   6. Hot water facilities
   7. Floors
   8. Are openings properly screened
VII. For Plants Doing Country Slaughtering
   1. Condition of truck
   2. Condition of tarpaulins
VIII. Scales
   1. Accurate
IX. General Appearance of Exterior
X. Management and Personal Appearance of Employes

Remarks: .....

DESIGN STANDARDS THAT MAY BE DETERMINED

Details of Mr. Lloyd's suggestions as to phases of plant design and construction which should be studied and discussed until eventually some sort of standards are decided upon are as follows:

1. The development of a standard design for freezer rooms to allow for a small pass-in door from the processing room into the freezer and a walk-in door between the freezer and the locker room.

2. The size and type of freezer door should be standardized. Should an in-fitting sharp freezer door measuring 2 x 6 feet be recommended in preference to an overlap super freezer door of the same or larger size?

HELP STANDARD DESIGN

3. Layouts for different size plants for air blast, coil, or plate freezers would be a great help in making a standard design.

4. A formula should be developed for varying the size of the chill room in relation to the cooler when local conditions dictate more chill room space.

5. Refrigeration manufacturers should recommend the best type of cooler room refrigeration so that a standard height could be established.

6. The best height for tracking in the cooler room should be established.

7. A design for placing corkboard on top of the ceiling rather than on the underside would be advantageous for new plant design.

BRANCH STATION DESIGN

8. Satisfactory branch locker station designs for various sizes would be helpful. These designs should include branch locker stations in existing buildings as well as those built as separate buildings.

9. The best practice for locating lockers in the walk-in plant should be considered. It might be well to leave a square of lockers out of the design opposite the entrance door to give a lobby effect rather than crowding them close to the door and making it inconvenient for the patrons.

10. Killing floor layouts, both standing alone and as an integral part of the locker plant building should be considered.

11. Curing rooms and smoke house designs could be better standardized.

One Plant Is Started . . .

LESTER PRAIRIE, Minn.— Volkenants Meat Market has let a contract to Beecher-Cumming, Inc. of Minneapolis, for construction of a frozen food locker plant here.

. . . Another Opened

CAMPBELLSPORT, Wis. — Campbellsport Locker Service has been opened here by F. J. Hoffmann.

Northwest Locker Men Hold Fourth Annual Meeting

PORTLAND, Ore. — A plea for plenty of competition—as long as it is intelligent, ethical competition—and a session during which typical locker patrons were invited to speak their minds on locker plant operation highlighted the 1941 conference and convention of the Pacific Northwest Refrigerated Locker Operators Association held here recently.

About 200 locker operators from Oregon, Washington, California, and Idaho attended the convention as guests of the Oregon Frozen Food Locker Association. Displays were sponsored by a number of manufacturers of locker plant equipment and supplies.

Thomas Onsdorff, secretary-treasurer of the association, associate professor of agriculture at Oregon State College, and mastermind of the convention, appealed to the plant operators to encourage attendance at these meetings and membership in their associations. "If we must have competition," he declared, "let's have it be good competition."

Topics discussed at the two-day conference included plant equipment and operation, public relations, new developments in food freezing, dietetic problems and food values, and product handling and merchandising.

New officers of the Pacific Northwest Refrigerated Locker Operators Association were elected as follows: M. H. Brown, Aberdeen, Wash., president; Craig C. Condit, Forest Grove, Ore., vice president; Thomas Onsdorff, Oregon State College, secretary-treasurer.

Plans were laid for the association's fifth annual meeting next March. This meeting will be a three-day affair, first two days of which will be devoted to instruction in plant operation, and the third day to association business.

During this year's two-day convention, Portland locker plant operators held open house for out-of-town and out-of-state visitors.

John D. Trullinger, president of the association for the past year, presided at the convention sessions.

Locker patrons and prospective patrons—including the general public—were invited to attend this first day's session, which was so planned as to be of special interest to them as well as to the owners of locker plants.

E. H. Weigand, head of the food industries department of Oregon State College, spoke about selecting and preparing fruits and vegetables for locker storage.

First speaker of the afternoon session was A. W. Oliver, associate professor in animal husbandry at Oregon State College, who spoke on "Getting Real Value in Locker-Stored Meats."

Next feature was headed "The Housewife Patron Reviews Her Locker." During this period women locker patrons from various parts of the state told what they liked about food storage lockers and made suggestions for possible improvements.

Final feature of the first day's program was a fact-revealing forum on locker foods and locker problems.

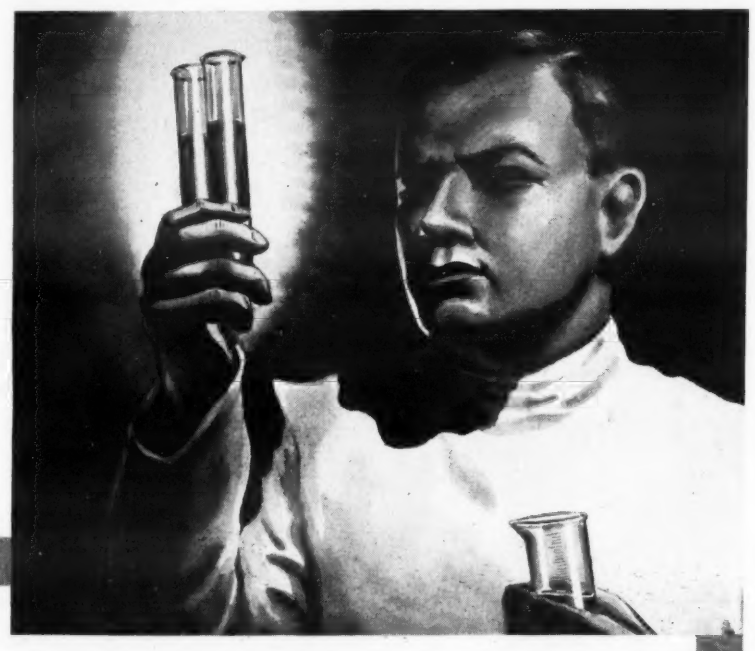
E. S. Jordan of Seattle started off the second day's program. His subject was: "What Has Happened, Can Happen. How About Insurance?"

"Odor Control and Air Purification in Locker Plants" was the subject of the informal talk by W. P. Loofburrow of the National Ozone Corp., Portland.

Subject of Frank B. Wire, state game supervisor, Portland, was: "Are You Good to Your Game?"

Ralph W. Wright talked on "Cost Accounting in Locker Plants."

Doesn't Look Like a Soldier, Does He?



No uniform. No gun. Just an apron and a test tube. No, he doesn't look much like a soldier.

Yet he is the defender and guardian of something as precious in industry as our national security is precious to us all.

He is guarding quality—the quality of the products that bear the Ansul name. He is an Ansul research chemist.

Ordinarily Ansul advertisements talk about Ansul products, and we sometimes forget the men in the research laboratory. But it is their endless dissatisfactions, their constant questionings, their patient searchings and checkings that make it possible for us to say, *Ansul products are* QUALITY *products*—and have it mean just that.

The Ansul Research Department is, of course, much more than a guardian. It works steadily to *improve* quality. It offers aid to Ansul customers in solving difficulties in the field, and supplies these customers with the newest technical information. It serves the whole refrigeration industry with the results of its original research.

Among their test tubes, refrigeration units, and laboratory apparatus, the Ansul research men don't look much like soldiers. They're guardsmen, nevertheless, guarding quality, guarding the interests of Ansul customers.

Seven Original Research Papers Available on Request

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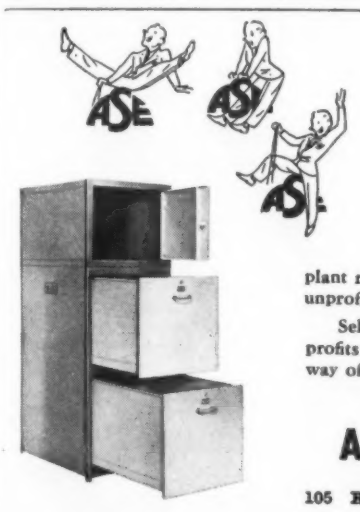

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Sell UNIT Lockers for immediate needs—make additional profits on repeat orders. Write today for full details on this easy way of increasing your income.

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Conditioning Pet Shop Ends 'Cruelty' Talk & Increases Sales

LOS ANGELES—At least one pet store has gone all out on this "be kind to dumb animals" business by air conditioning the show window in which it displays its "livestock." So if you haven't already sold a unit cooler to your local dog-cat-and-canary establishment, you'd better hustle up and close the deal before somebody else does.

Germaine's Seed & Pet Store here, like most stores of this kind, had long been bothered during spells of hot weather by passersby dropping in to tell the management that the animals should be taken out of the window. But since the display of pets is one of the surest ways of drawing trade to the store, the management was quite loath to remove the animals and thus deprive the establishment of its most potent traffic-stopper.

Faced by this dilemma, the proprietor of Germaine's determined to install a self-contained air conditioner at the rear of the window to provide cooling comfort for the pets on display.

To attract attention to this new feature, streamers were attached to the air outlet, and a sign reading "This Window Is Air Conditioned" was fastened beneath the grille.

Result of this improvement was an instantly favorable public reaction which manifested itself in increased business for all departments of the store, the proprietor reports. People who claimed that for years they had been protesting against the practice of displaying pets under improper conditions now stopped in to buy and to explain that they wanted to patronize a store which handled its animals with such consideration.

Fitting Tight Corsets Is No Problem Now

TAMPA, Fla.—Air conditioning installed in the corset department of Maas Brothers department store has materially cut down on exchanges of girdles and corsets, by making it possible to properly fit women in the dressing rooms provided for that purpose, the store reports. Like many department stores, Maas Brothers refuses to exchange a girdle after it has been tried on outside the store.

However, many women insisted on taking girdles home, then bringing them back a day or so later with the complaint that the garment does not fit. In most cases, the store was forced to "give in" and accept the girdle as credit on another.

An attempt was always made to ask women to try the girdle on in the fitting room—but because of uncomfortable heat in the small cubicles provided for that purpose, most women refused. Now, however, since a 12-ton air conditioning system has been installed, women enjoy trying on a girdle, and returns have been reduced. Another advantage is the fact that the cooler air makes for less perspiration on skin, and women can pull on tight girdles and pantie girdles without as much difficulty as before.

Jewelry Clerks Benefit From Cooling System

PALATKA, Fla.—When H. F. Underwood modernized his jewelry store here, he installed air conditioning as a business stimulant—to bring more people into his store during the hot summer months—but he has found that the benefits to those working in his store were beyond any anticipation.

According to Mr. Underwood, who is president of the Florida Retail Jewelers' Association, the morale is better in the store, because everyone remains fresh throughout the day. There is no mid-afternoon sag, which has been common during the hot weather.

"Usually a customer who comes in on a hot day is uncomfortable and inclined to be irritable," Mr. Underwood said. "When the clerk behind the counter is in a similar mental state, there is much less chance for a pleasant conversation than when the clerk is in a good frame of mind."

Church In Birmingham, Ala. Gets Year-Around Job

BIRMINGHAM, Ala.—Year-around air conditioning will be installed in the First Methodist Church here before June 1 of this year. The 84-ton system, which incorporates automatic heating equipment for winter, is being installed by Shook & Fletcher Supply Co.

Air will be introduced to the building at the ceiling, in a manner that will not cause drafts. Temperature and humidity will be under automatic control. The system is designed for quiet operation.

Matthews Engineering Moves To Permanent Location

DALLAS, Tex.—Matthews Engineering Co., of Dallas, air conditioning and refrigeration engineers, which has been occupying temporary quarters at 2025 Main St., has moved to a permanent location at 2125 Olive St.

Reducing Humidity May Speed Up Cutting Of Diamonds Despite Labor Shortage

NEW YORK CITY—An acute shortage of labor in America's booming diamond-cutting industry may be solved as a result of the first air conditioning installation in a diamond-sawing room.

Excessive humidity has been one of the major obstacles in diamond-cutting. A diamond saw won't work in wet, muggy weather, and even slight excess humidity slows up the process of sawing the precious stones.

In an effort to eliminate this condition, Carrier air conditioning engineers were called in by Baumgold Brothers, who conduct the largest diamond-cutting business in the United States. In the plant, 100 of the 500 expert diamond cutters in this country are employed.

An air conditioning unit was installed in the diamond-sawing room, where it maintains a definite humidity and temperature which diamond-cutters agree are ideal for their work.

As a result of air conditioning the room, the diamond-cutters are able to keep their saws running continuously. This has increased their sawing capacity by 30%.

Because of the need for "industrial" diamonds in the defense industry speed-up program, increasing the output of the diamond-cutters in America is highly important.

Since the invasion of The Netherlands and Belgium, New York City has become the diamond-cutting center of the world.

The sawing machine revolves at a speed of about 2,500 revolutions per minute. The edge of the saw is "charged" or coated with diamond dust and olive oil. Actually, it is not the saw that does the cutting but the diamond powder, and excess humidity in the air slows up the process.

ASHVE, Heating Men To Meet June 16-20

SAN FRANCISCO—The American Society of Heating & Ventilating Engineers will hold its semi-annual meeting concurrently with the fifty-second annual convention of the Heating, Piping & Air Conditioning Contractors National Association, during the Pacific Heating & Air Conditioning Exposition here June 16-20.

Some 100 manufacturers will participate in the exposition, and 100,000 invitations will be issued to visit the exhibits. Convention headquarters for the A.S.H.V.E. will be at the Palace hotel—for the Heating & Piping Contractors at the St. Francis hotel.

Committee from the A.S.H.V.E. chapter here in charge of arrangements includes G. M. Simonson, Clyde Bentley, Dr. B. M. Woods, N. H. Peterson, C. L. Peterson, J. A. Bouey, J. F. Kooistra, E. W. Simons, J. A. Hill, F. W. Kolb, and R. A. Folsom.

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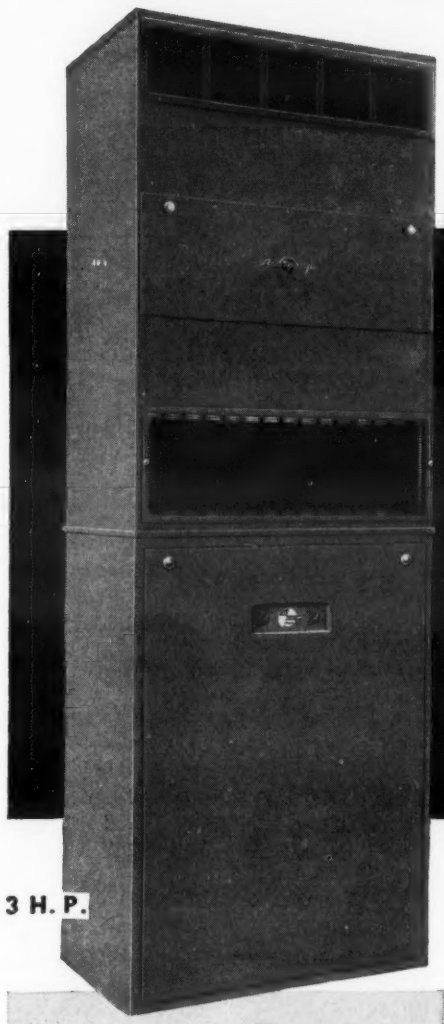
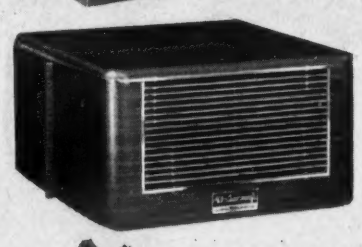


3 H. P.



Was $1[illegible]50 –NOW $89.00*

Airtemp Room Cooler—Model WC-40—⅓ h.p. for window installations in small rooms; doctors' & dentists' offices, etc.

Was $2[illegible].00 –NOW $137.50*

Was $3[illegible].00 –NOW $257.70*

DeLuxe floor models—½ and ¾ h. p.—Models FC-60 and 90 for larger rooms and offices.

*Suggested "Leader" Prices.

And Reduced Prices On Airtemp Room Coolers Help You Get The Business

Prospects Galore—Just think, only about one business in 10 has summer air-conditioning! All the rest want it. A survey just completed among 164 businesses in 23 classifications in Dayton, Ohio, showed that 10% intended to buy cooling equipment at once! 22.5% were live prospects.

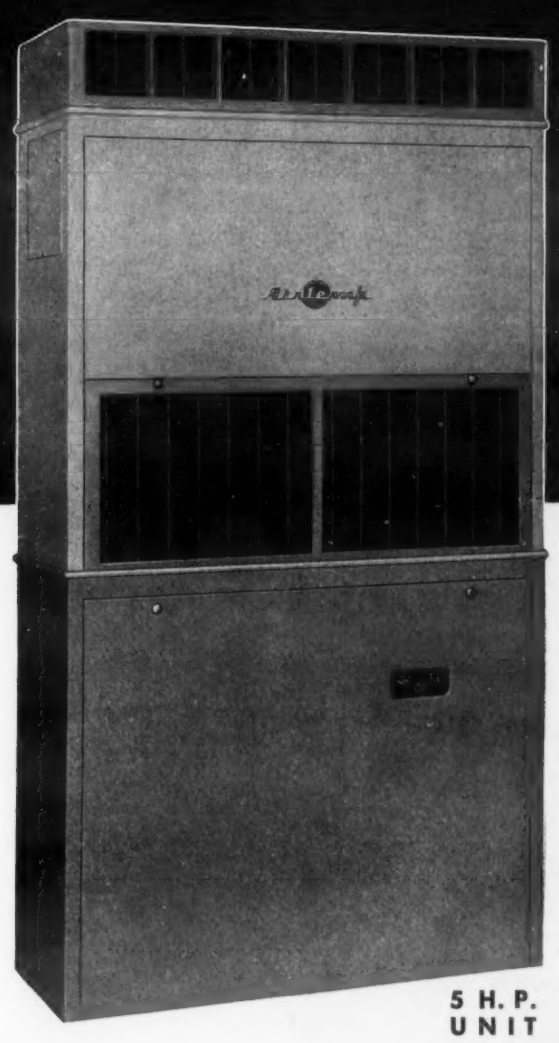
Easy To Sell—Most of the remaining 77.5% said they wanted summer cooling but thought they "couldn't afford it." What a chance for salesmen! The average business man thinks cooling costs twice as much as it actually does—can easily be shown that it pays for itself. All businesses report increased summer sales after air-conditioning—from 7% to 33%.

Room Coolers Are Leaders—To help dealers get prospects, we are offering a special deal on room coolers—reduced prices that not only move the smaller units fast, but develop volume on the 3 and 5 h. p. units which carry a substantial profit.

Chrysler Engineered and Warranted—Every Airtemp room cooler and cooling unit is engineered, built and warranted by Chrysler Corporation. Airtemp makes the only hermetically-sealed radial compressor on the market! It cuts service cost for dealers, operating cost for customers.

Act Now—The season is here, thousands of business men are planning to buy air-conditioning right now! Get your share of the business. Get the details of this special offer. It cannot last!

MAIL COUPON TODAY



5 H. P. UNIT

PROSPECTS!

Drug Stores	Gift Shops
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Hat Stores	Private Offices
Candy Stores	Beauty Parlors
Book Stores	Restaurants
Jewelry Stores	Cafeterias
Grocery Stores	Bakeries
Haberdasher Shops	Lunch Rooms
Specialty Shops	Showrooms
Hosiery Shops	Tea Rooms
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95% of all these businesses can best be served with Airtemp 3 h. p. and 5 h. p. cooling units.

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Moncher Discusses

Engineering an Installation In A Medium Size Meat Market

Editor's Note: This is one of a series of articles which will discuss methods of estimating load requirements, selecting equipment, and making the proper kind of an installation for specific types of commercial refrigeration installations. Sam Moncher, author of these articles, is a refrigeration engineer representing a refrigeration equipment manufacturer in the New York City area, and is the author of books and articles on modern refrigeration engineering practice. It is planned to have these articles cover a wide range and variety of installations.

By Sam Moncher

The meat market installation discussed here is typical of the medium size independent butcher shops and super-market meat departments throughout the country.

One central refrigerator divided into three compartments provides a large general storage space, plus a corned beef room and freezer. (See Fig. 1.) In addition, a 20 foot single duty show case is used for the display and storage of cut meats, chopped meat, poultry, and other "over-the-counter" items.

For the effective storage of fresh meat and poultry, exacting conditions of temperature and humidity must be maintained. A constant temperature of 36° with a relative humidity of 85% is ideal for commercial refrigerators, both from the point of view of equipment practicability, and a minimum of product shrinkage and spoilage. For long period storage, however, freezing temperatures are necessary.

Here, a temperature of 20° represents a happy mean between equipment economy and storage efficacy. The corned beef room, on the other hand, does not require a temperature any lower than 40°, and humidity is no problem inasmuch as the meat is immersed in liquid.

Likewise, a temperature of 40° is sufficient for the temporary storage requirements of the display case.

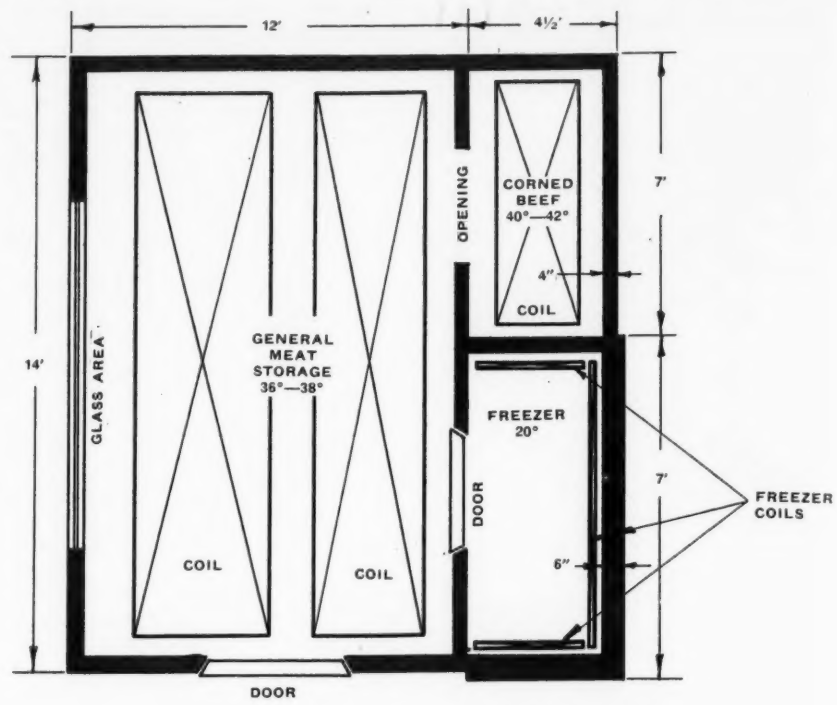
The general meat storage refrigerator can be well suited with gravity fin coils equipped with metallic, multi-louvered, open type drip pans, commonly known by the trade name of "flash coolers."

For the corned beef room it is decided to use the existing solid wooden bunker with a gravity coil, while for the freezer, wall coils with 2 inch fin spacing are selected. Operating suction temperatures for the three refrigerators are as follows:

General Storage	21°
Corned Beef	21°
Freezer	5°

The selection of highside equipment presents several possibilities. A separate compressor for the display case is desirable in any case, inasmuch as this piece of equipment works independently of the rest. For the other three refrigerators a single condensing unit is feasible and economical, the two distinct suction pressures being maintained by the use of a constant pressure valve.

Fig. 1 - - Plan of Meat Market Refrigerator



Dimensions and temperatures of meat box.

Table 1 - - Usage Factors

Empirical usage factors for meat market refrigerators, expressed in **B.t.u. per hour per cubic foot** of interior capacity, and based on a temperature difference of 50°-60° for the high temperature refrigerators, and a temperature difference of 60°-80° for the freezer.

A. WALK IN REFRIGERATOR

Size	Factor
Under 300 cu. ft.	4.2
300- 500 cu. ft.	3.1
500- 700 cu. ft.	2.6
700-1,000 cu. ft.	2.3
1,000-1,500 cu. ft.	2.0

B. DISPLAY REFRIGERATOR

Size	Factor
Under 100 cu. ft.	10
100-150 cu. ft.	8
150-250 cu. ft.	6

C. FREEZER, OPENING OFF WALK IN REFRIGERATOR

Size	Factor
Under 150 cu. ft.	0.8
150-200 cu. ft.	0.7
200-250 cu. ft.	0.5
250-300 cu. ft.	0.4

Load Calculations

A HEAT GAIN OF GENERAL MEAT REFRIGERATOR

Total outside surface =	856 sq. ft.
Glass area =	40 sq. ft.
Area exposed to refrigerated space =	140 sq. ft.
Net area =	676 sq. ft.
Cubical content =	1,287 cu. ft.

	B.t.u./24 hrs.
Insulation loss = 676 x .06 x 54 x 24 =	52,600
= 40 x .29 x 54 x 24 =	15,100
Usage loss = 1,287 x 2 x 24 = (see Table 2)	61,900
Product load = 2,000 x .75 x 14 =	21,000
= 400 x .8 x 54 =	17,300
Safety factor 10% =	16,800
Total load =	**184,700**

Hourly load based on 16 hr. operation = 11,500 B.t.u./hr.

B HEAT GAIN OF CORNED BEEF REFRIGERATOR

Total outside surface =	310 sq. ft.
Area exposed to refrigerated space =	120 sq. ft.
Net area =	190 sq. ft.
Cubical content =	216 cu. ft.

	B.t.u./24 hrs.
Insulation loss = 190 x .06 x 50 x 24 =	13,700
*Usage loss = 216 x 2 x 24 = (see Table 2)	10,400
Product load = 200 x .75 x 20 =	3,000
= 400 x 1 x 30 =	12,000
Total load =	**39,100**

Hourly load based on 16 hr. operation = 2,450 B.t.u./hr.

*Inasmuch as there is no door between corned beef room and general refrigerator, the usage factor is based on the total volume of the two rooms.

C HEAT GAIN OF FREEZER

Total outside surface =	310 sq. ft.
Area exposed to refrigerated space =	120 sq. ft.
Net area =	190 sq. ft.
Cubical content =	216 cu. ft.

	B.t.u./24 hrs.
Insulation loss = 190 x .05 x 70 x 24 =	16,000
= 120 x .06 x 20 x 24 =	3,500
Usage loss = 216 x .05 x 24 = (see Table 2)	2,600
Product load = 300 x .75 x 20 =	4,500
= 300 x 100 =	30,000
= 100 x .08 x 20 =	1,600
= 100 x 110 =	11,000
Safety factor 20% =	14,000
Total load =	**83,200**

Hourly load based on 16 hr. operation = 5,100 B.t.u./hr.

D HEAT GAIN OF DISPLAY CASE

Total outside surface =	234 sq. ft.
Glass area =	70 sq. ft.
Net area =	164 sq. ft.
Cubical content =	75 cu. ft.

	B.t.u./24 hrs.
Insulation loss = 164 x .09 x 60 x 24 =	21,300
= 70 x .29 x 60 x 24 =	29,200
Usage loss = 75 x 10 x 24 = (see Table 2)	18,000
Total load =	**68,500**

Hourly load based on 16 hr. operation = 4,300 B.t.u./hr.

EQUIPMENT INSTALLATION

Fig. 2 shows the hook-up of the constant pressure valve. The condensing unit, which is selected to produce a minimum of 20,000 B.t.u./hr. (approximately 2 hp.), is equipped with a pressure control adjusted to maintain a working refrigerant temperature of 5° and allowing for nominal pressure drop in suction lines. With "Freon-12" as refrigerant, this would necessitate a cut-in pressure of about 21 pounds gauge, and a cut-out point of about 9 pounds gauge.

The constant pressure valve is installed between the manifold of the suction lines from the high temperature evaporators and the suction line from the low temperature evaporator as shown on Fig. 2.

(Concluded on Page 25, Column 1)

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MORE POWER
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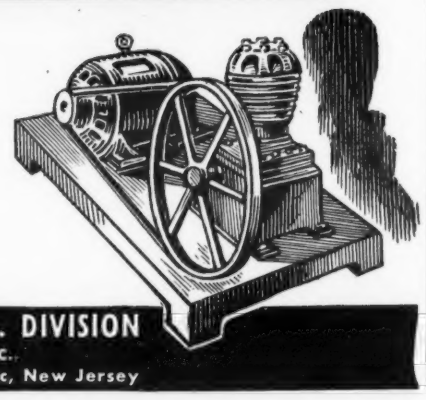

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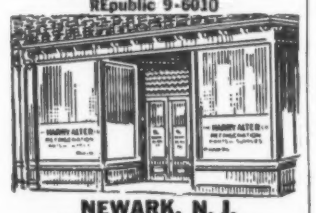

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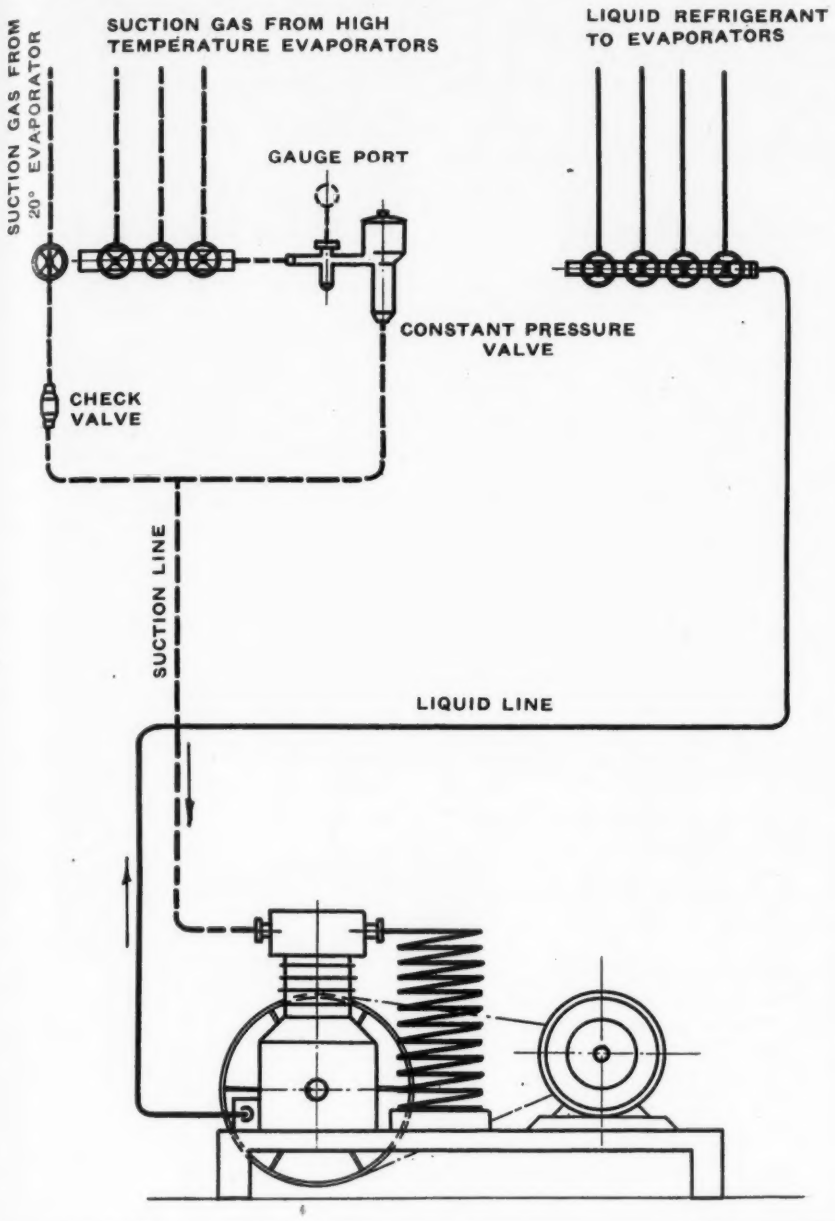
Anaconda Copper Refrigeration Tubes for difficult jobs!

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

Fig. 2 - - Pressure Valve Hookup



Engineer's Survey Sheet for Meat Market

	GENERAL MEAT REFRIG-ERATOR	CORNED BEEF ROOM	FREEZER	DISPLAY CASE
OUTSIDE DIMENSIONS	12′ x 14′ x 10′ high	5′ x 7′ x 10′ high	5′ x 7′ x 8′ high	2½′ x 3′ x 20′ high
INSULATION	4″ corkboard	4″ corkboard	6″ corkboard	3″ fiber glass
GLASS AREA	40 sq. ft. triple glass	none	none	70 sq. ft. triple glass
MAXIMUM AMBIENT TEMPERATURE	90°	90° (except common wall)	90° (except common wall)	100°
REFRIGERATOR TEMPERATURE	36°	41°	20°	40°
MAXIMUM PRODUCT LOAD PER 24 HRS.	2,000 lbs. meat at 50° 400 lbs. poultry at 90°	200 lbs. meat at 60° 50 gal. water at 70°	300 lbs. meat at 40° 100 lbs. poultry at 40°	all precooled

No Special Connections Needed For Manifold; Check Valve Used

(Concluded from Page 24, Column 5)

While the compressor is operating, this valve is adjusted to maintain a temperature of 21° (22 pounds) in the evaporators to which it is connected. A gauge port in the valve body permits this operation to be carried out with ease.

As can be seen from Fig. 2, no special connections are necessary in the liquid distributing system, a straight manifold providing adequate liquid distribution. The only other special connection required is the insertion of a check valve in the suction line from the low temperature coil to prevent the higher pressure gas from the warmer evaporators from backing up into this coil.

Servicing of Room Coolers Described In Philco's New Bulletin 22

PHILADELPHIA—Complete information on the operating cycle, installation, and servicing of Philco room coolers is given in the company's "Air Conditioner Bulletin No. 22" recently issued by the parts and service division of Philco Corp.

Flow of air through the units is explained, electrical diagrams are given, and graphs showing the refrigeration characteristics of the room coolers are presented in the bulletin. Complete specifications are also included.

3 Units Cool Produce Received By Big Coast Market

MODESTO, Calif.—Three separate Baker condensing units with a 10-ton evaporative condenser for high side cooling have been installed in the B. & T. Market here to provide refrigeration for the large shipments of perishable products which the market receives.

A 5-hp. compressor holds the 20 x 20 x 11-foot vegetable room at 42° F., the 20 x 14 x 11-foot grocery room at 40° F., and the 10 x 8 x 10-foot butter box at 42° F.

The 20 x 20 x 11-foot meat room is held at 36° F. by a 3-hp. compressor which also supplies refrigeration for two large meat cases. A 20 x 20 x 11-foot banana room, which also is used as a supplementary vegetable room, is held at 42° F. by a 1½-hp. unit.

3-SPEED FANS USED

All coils are recooled, and both the meat and banana room are equipped with three-speed fans.

Outside walls of these refrigerated storage rooms were built of 6-inch studding which was papered and hot tarred on the outside and filled with rock wool insulation which had been dipped in hot tar. Inside walls are of identical construction except that 4-inch studding was used. Six inches of insulation was used in the ceilings, 4 inches in the floors. Room interiors are finished in cement plaster.

Cost of the installation, including both material and labor, was less than $4,300. Daily operating costs are claimed to be less than $1.25.

New Psychrometric Chart Published By Niagara

BUFFALO—A new psychrometric chart for temperatures ranging from 50° F. to minus 40° F. has been published by the Niagara Blower Co. here. Designed by C. N. Deverall, the wall size chart has additive corrections for grains of moisture and B.t.u. per pound of air at various barometric pressures.

For low temperature work, the scale of the Deverall chart below zero has been enlarged to three times that of the scale above zero. This is accomplished by increasing the vapor pressure scale below zero. This causes a definite break in the relative humidity curves and slope of the wet bulb lines on the chart. The enlarged low temperature section makes this portion of the chart easier to read.

By the use of "folded" scales for moisture content and total heat, it is possible to read the grains of moisture to three decimal places and total heat to two decimal places.

Servel 'Superfinishes' Moving Machine Parts

EVANSVILLE, Ind.—Servel commercial refrigerating machines now have "Superfinish" on all eccentrics, eccentric shafts, and other important moving parts, according to an announcement by company engineers. The Superfinish process was developed in the automotive industry.

Development of hard steel alloys during recent years has created new finishing problems. Grinding, burnishing, and lapping often left a coat of "smear metal" which spread over the hard crystalline surface.

Superfinishing is described by Servel as "using a stick or bar of abrasive material, like a whetstone, having a true straight surface mounted in a resilient holder so that the face can adjust its alignment to a surface being finished." The work is revolved slowly, and two finishing stones are oscillated from side to side.

Servel engineers have found that superfinishing makes refrigerating machines quieter.

Fedders To Sell Vertical Flat Fin Condensers

BUFFALO—A complete line of vertical flat fin condensers in capacities from ⅛ to 2 hp. has been announced by Fedders Mfg. Co.

Over a million of these condensers have been produced for use as standard equipment on leading refrigerators, and these models are now available to the replacement field.

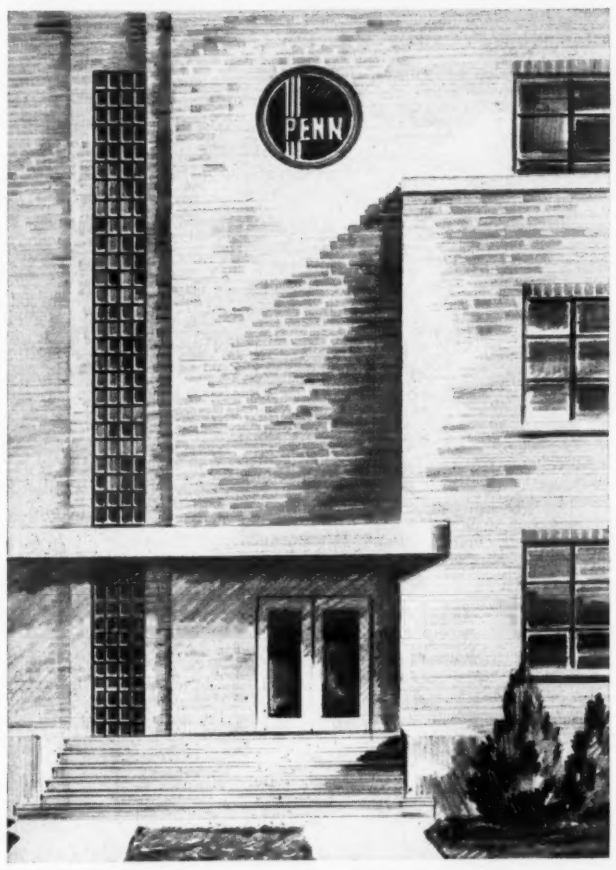
This new line features continuous tube design, and is available in single, double, and triple pass models.

Condensers are manifolded at inlet and outlet on all sizes from ¾ hp. up.

Fins have flanged metal-to-metal contact with tubes for high efficiency heat transfer between prime and secondary surface.

Strong, rigid "L" type brackets are provided on sizes up to and including ½ hp. Channel type brackets are used on sizes ¾ hp. and up.

Special cleaning and dehydrating processes assure the complete elimination of foreign matter.



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Select your nearest Penn distributor from the list printed below, then keep this distributor's name for ready reference. Remember, here is where you'll get prompt service on all orders for controls and parts. You can depend on it!
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BEAUMONT, TEXAS
Standard Brass & Mfg. Co.
BIRMINGHAM, ALABAMA
Refrigeration Supplies Dist.
BOSTON, MASS.
A. E. Borden Co.
BROOKLYN, NEW YORK
The Harry Alter Co.
Coleman Electrical Supply Co.
Excel Refrigeration Supplies, Inc.
Melchior, Armstrong, Dessau Co.
BUFFALO, NEW YORK
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Root, Neal & Co.
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Henry V. Dick & Co.
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The Harry Alter Co.
Debes & Company
Williams & Co., Inc.
COLUMBIA, S. C.
Henry V. Dick & Co.
COLUMBUS, OHIO
Refrigeration Electric Supply Co.
Williams & Co., Inc.
DALLAS, TEXAS
Beckett Electric Co., Inc.
The Electromotive Corp.
L & S Supply Co.
DAVENPORT, IOWA
Republic Electric Co.
DAYTON, OHIO
The W. H. Kiefaber Co.
DENVER, COLORADO
McCombs Refrigeration Supply Co.
DES MOINES, IOWA
Dennis Refrigeration Supply Co.
Penn Switch Repair Co.
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J. M. Oberc, Inc.
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Refrigeration Supply Co.
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Refrigeration Supply Co.
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Allied Refrigeration
Refrigeration Supplies Dist.
LOS ANGELES, CALIF.
Pacific Metals Co., Ltd.
Refrigeration Service, Inc.
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Dennis Refrigeration Supply Co.
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English Engineer's Correspondence Shows Refrigeration Work 'Carries On'

Possible Variations In Heat Exchanger Performance Worries London Reader

Editor's Note: This correspondence between two members of American refrigeration equipment firms and L. J. Wolf of Refrigerator Components, Ltd., London, is interesting not only because of its informal but informative discussion about heat exchangers, but also because of the attitude of Mr. Wolf towards his business in Britain's great emergency—and his statement that refrigeration is "an essential wartime need."

You'd Hardly Think They Were In a War

Refrigerator Components, Ltd.
Engineers & Merchants
34 Broadway
Westminister, London, S.W.1
Jan. 23, 1941

Mr. K. M. Newcum, Vice President
Superior Valves & Fittings Co.
Pittsburgh, Pa., U.S.A.
By Air Mail

Dear Mr. Newcum:

I have been very interested in the report of the paper you read on Heat Exchangers which appeared in the Dec. 4 issue of AIR CONDITIONING & REFRIGERATION NEWS; also in the paper read by David Crampton of Wallace & Tiernan Co. on the same subject in Dec. 18 issue. Briefly, as a practical engineer, what concerns me is the fact that the use of heat interchangers in a refrigeration system has certain effects resulting in increased efficiency of the various components making up a refrigeration installation.

I appreciate that if the gas is dried in a heat exchanger, thus enabling the evaporator coil to operate at maximum efficiency, then on any given application a saving in the material of the coil can be effected. Incidentally, if the liquid entering the expansion valve is pre-cooled this must raise its refrigerating effect proportionately, not to mention the fact of reducing flash gas. Furthermore, the superheating of the gas on its way to the compressor must obviously increase the extraction capacity of the compressor, making it possible on this item also to effect economy by the possibility of installing on many occasions a smaller hp. unit than would otherwise be possible.

The difficulty the practical engineer, without deep knowledge of a subject, has is calculating how to take proper commercial advantage of the use of a heat exchanger, and how to calculate the proper size of heat exchanger to use in any special application.

Conditions on this side are somewhat different to those you meet with in U. S. A. We handle a well known American compressor as well as other American components entering into the assembly of refrigerators, but data on extraction capacities, etc., are naturally based upon American conditions, and we have to make corrections to meet conditions on this side.

For instance, we have data on our compressors from —20° refrigerant temperature to say +40°, at 90° condensing for air cooled units, and with regard to water cooled units with 75° entering and 95° leaving water. We have a factor which sufficiently accurately corrects these for conditions here, that is, 80° condensing for air cooled units, and with regard to water cooled units 65° entering water and 95° leaving water. These can be considered as peak load conditions.

Unfortunately we have no figures which would enable us to calculate the proper selection of heat interchangers, and the increase in compressor capacities which can be expected if the liquid leaving the receiver at 80° F. is pre-cooled before entering the evaporator at any temperature between —20° F. and say +40° F., and if the gas is superheated to say 65° as it enters the compressor.

In my opinion this is data which a manufacturer of heat interchangers bent on obtaining worthwhile sales of such an appliance should furnish, and I would be very glad if you could give me the necessary data, or if not, the formula for calculating same.

Can data be furnished based on the degrees superheat of the evaporator to indicate the percentage saving of coilage which can be effected under various conditions between —20° and +40° refrigerant temperature?

I feel perhaps my writing you for this is imposing too much on your good nature, but it does seem to me that if practical use is to be made of heat interchangers some guide to their proper use is essential to the practical engineer.

L. J. WOLF,
Managing Director

'Can't Multiply The Advantages' Is Opinion

Superior Valve & Fittings Co.
1509 W. Liberty Ave.
Pittsburgh, Pa.
Feb. 17, 1941

Mr. David Crampton, Engineer
Wallace & Tiernan Co.
Newark, New Jersey

Dear Dave:

Attached is a letter dated Jan. 23, 1941, from Mr. L. J. Wolf, managing director, Refrigerator Components, Ltd., London, England, in which Mr. Wolf is requesting data for selecting heat exchangers, based upon lower water and air temperatures prevailing in England.

Won't you please look it over and then let me know if you agree with my opinion that they should use the same capacity selection data for conditions in England as we use here for this reason, namely, in figuring the capacity of low sides, also high sides (and especially high sides) they already have taken advantage of lower prevailing cooling medium temperatures, and, therefore, have made the necessary correction to allow for a higher B.t.u. per hour rating.

Now because they already have made correction and established higher B.t.u. ratings for their condensing units, they already have taken the one advantage, and I do not believe that we can multiply by taking two advantages, that is, one for the lower prevailing cooling medium temperatures, and another by establishing higher capacity ratings for the heat exchanger.

It is my opinion that Mr. Wolf would be safe in figuring an average increase in capacity of from 10 to 15% by using a heat exchanger, whether he uses it under conditions prevailing in England after having made correction for lower prevailing cooling medium temperatures, or if used in the United States with cooling medium temperatures prevailing here.

If you concur, please let me know. If not, also give me what information you can without too much trouble and I'll pass it along to Mr. Wolf.

Apparently our papers have been read far and wide.

Incidentally, isn't it interesting to note that with London being bombed almost daily, at least according to newspaper reports, that Mr. Wolf's prime interest still is in his business. It is also interesting to note that the air mail letter required only five days to reach United States. Incidentally, we received via regular mail another copy of the letter which took only 20 days. Therefore, I'd assume that conditions aren't as bad as we sometimes are inclined to believe.

Please return Mr. Wolf's letter with your comments.

K. M. NEWCUM,
Vice President & Sales Manager

Mr. Wolf Gets More Data

Wallace & Tiernan Co., Inc.
Newark, N. J.
Feb. 20, 1941

Mr. L. J. Wolf, Managing Director
Refrigerator Components, Ltd.
34 Broadway
Westminister, London, S.W.1

Dear Mr. Wolf:

Mr. Newcum has referred to me your letter of Jan. 23 in which you mention having read an abstract of my article in AIR CONDITIONING & REFRIGERATION NEWS. I am taking the liberty of sending you a copy of the full article as it originally appeared which contains additional data which may be of interest to you.

I have also written Mr. Newcum and I am sure he will be able to give you some excellent advice as he is recognized as being an outstanding writer on refrigeration subjects in addition to his known position in the field of refrigeration fittings and accessories.

DAVID CRAMPTON,
Engineer

Formula For Measuring Exchanger's Benefits

Feb. 20, 1941

Superior Valve & Fittings Co.
1509 W. Liberty Ave.
Pittsburgh, Pa.
Attn: Mr. K. M. Newcum

Dear Ken:

Thank you for sending to my attention the letter which you received from L. J. Wolf, managing director, Refrigerator Components, Ltd. of London.

Answering Mr. Wolf's letter in reverse, I do not know of any accurate way to predict evaporator performance at varying degrees of superheat, using exchanger, without making actual tests. So much depends on the design of the particular evaporator—how it is laid out and so forth.

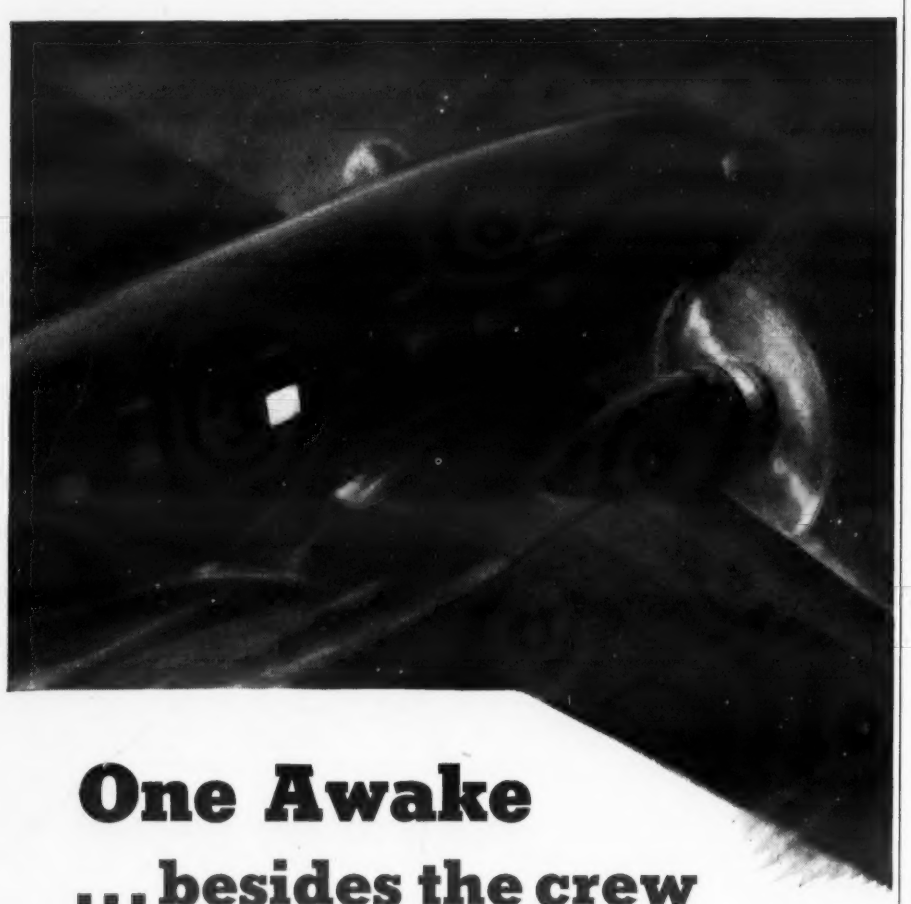
I would certainly recommend that Mr. Wolf run tests on any particular system he has in mind or advise his customers to do so, cutting the superheat down to a minimum, using the exchanger and noting the point at which maximum over-all efficiency is obtained. The method outlined in my paper is useful for this type of test.

Regarding performance on heat exchangers at lower condensing medium temperatures, I am enclosing a chart which has some theoretical bearing on the subject. The notation is the same as that used in my paper.

Without a heat exchanger, the refrigerating effect is approximately equal to area C when the condensing medium is at 90° F. I have allowed a 10° drop to effect heat transfer which is customary. Use of the heat exchanger will increase the refrigerating effect by the amount "B" and the percentage increase will be 100 B/C.

If the condensing medium temperature is 80° F.; and assuming the heat exchanger sub-cools the liquid to the same temperature as before, the result is a little different. Without the heat exchanger, the theoretical refrigerating effect is C' and the increase due to an exchanger is B'. The percentage

(Concluded on Page 27, Column 1)



One Awake ...besides the crew

ALL the other passengers are asleep, as the great airliner skims through the night. But the Bundy sales engineer still works over a set of specifications he must present next morning.

How Bundyweld tubing combines strength with workable ductility; how Bundy Triple-Purpose Monel meets varied corrosion problems; how Bundy Electric Weld may often be used in place of pipe — these things are just the beginning of the Bundy sales engineer's story.

For most Bundy tubing is sold as completely fabricated parts — with all forming and shaping operations finished, and fittings included—ready to assemble into the customer's product. And the Bundy sales engineer is frequently asked for plans to take over *completely* the tubing part of the customer's product design.

Many manufacturers have learned that they can safely forget tubing problems—or the tubing design involved in a change of model or in a new product—by laying the whole job right in Bundy's lap. If you use tubing in your finished product — in sizes within Bundy's range— Bundy's research and engineering department may have some helpful suggestions for you.—Bundy Tubing Company, Detroit.

BUNDY TUBING

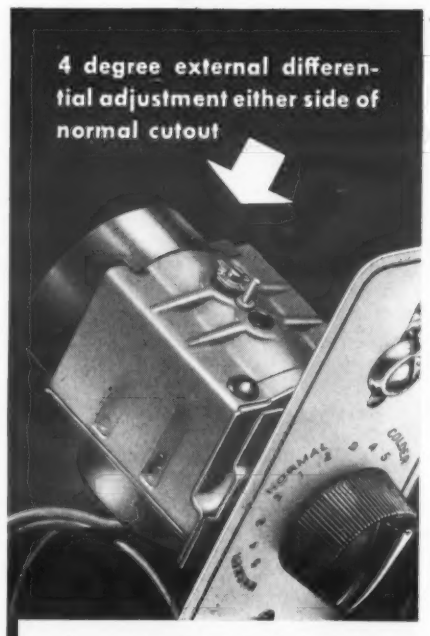
ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including ⅛" O.D. This double-walled type also available in steel, tin-coated outside, and in Monel.

BUNDY ELECTRIC WELD steel tubing. Single-walled —butt welded—annealed. Furnished tin-coated outside if desired. Sizes up to and including ⅝" O.D.

BUNDY "TRIPLE-PURPOSE" MONEL tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel, Monel inside—steel outside, and Monel outside — steel inside. Sizes up to and including ⅝" O.D.

"THIS GRAND LITTLE IDEA SURE SAVES ME TROUBLE!"



✓ **Adjustable Mounting Brackets** Maximum Mounting Centers . . 4 3/16 Minimum Mounting Centers . . 2 3/16

✓ **Adjustable Cutout Feature**—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.

✓ **Adjustable Range** — Turning screw clockwise lowers settings and counter-clockwise raises settings.

Handles 90% of Your Single-Button Replacement Needs

Now Cutler-Hammer brings to the refrigeration replacement control field, what service men have long been wanting: an *outside differential adjustment.* This new idea permits you to adjust the cut-out temperature to fit the requirements of the individual installation. A twist of the screw driver and you can set it exactly where you want . . . right on the job. You're not restricted to factory settings. There's no need to carry a large stock of controls for any job you *may* get. No trouble . . . no delays . . . no profit-wasting return calls.

The Cutler-Hammer Refrigeration Control also incorporates an *outside range* adjustment for varying operating temperatures on the job. Add to these adjustment features, its accessories, its compactness, and its versatile mounting provisions, and you get an efficient unit which will handle over 90% of your single-button control demands.

Release that "dead storage" money lying idle in excessive stock by re-stocking with Cutler-Hammer Refrigeration Control. Stock this one control; you'll get more rapid turnover, bigger profits, and real customer satisfaction. Lists at $6.00. Write now or see your wholesaler. CUTLER-HAMMER, Inc., *Pioneer Electrical Manufacturers,* 1362 St. Paul Ave., Milwaukee, Wis.

MODERN REFRIGERATION CONTROL

CUTLER-HAMMER MOTOR CONTROL C-H

English 'Carry On' In Refrigeration

(Concluded from Page 26, Column 5)

increase is 100 B'/C', which is obviously less than that obtained in the former case. The difference, however, is not a great deal and as you and I both readily appreciate practical matters such as the operating superheat design of evaporator type of expansion valve and so forth may have a much greater effect than that outlined in the foregoing theoretical example.

I suggest that the recommendations which I made which were about 1 square foot of suction side surface for each 1 hp. of compressor would not be unreasonable. I believe such a recommendation is substantially in agreement with those which you publish and your tables might be used just as well.

I think it should be pointed out to Mr. Wolf that the difference in cost of an exchanger to operate at 80° condensing medium temperature and one that operates at 90° is a very small amount and should not affect practical engineering considerations.

DAVID CRAMPTON,
Engineer

Mr. Wolf Gets the Data

Superior Valve & Fittings Co.
1509 W. Liberty Ave.
Pittsburgh, Pa.
Feb. 21, 1941

Mr. L. J. Wolf, Managing Director
Refrigerator Components, Ltd.
34 Broadway
Westminister, London, S.W.1

My dear Mr. Wolf:

Your letter of Jan. 23, 1941 was in no way an imposition. It denotes interest not only in our products and their application, but also your efforts to gain more information concerning the use and application of heat exchangers so that you can better do your job. We are always glad to be of any possible assistance.

I think your questions are fairly well answered in copy of my letter of Feb. 17 to David Crampton, engineer, Wallace & Tiernan Co., Mr. Crampton's reply of Feb. 20, together with entropy diagram entitled, "T-S Diagram for 'Freon-12' Showing Effect of Heat Exchangers."

It is pertinent to note, in the last sentence, page 2, of Mr. Crampton's letter, he suggests the use of our table as shown on page 18 of our catalog R1, also page 4, supplement to our catalog R1, copy of which is enclosed.

If the information given you to date is not to your satisfaction, please feel free to continue the correspondence, for most certainly we are interested in developing further data on heat exchangers.

K. M. NEWCUM,
Vice President & Sales Manager

The War Is Finally Discussed

Refrigerator Components, Ltd.
Engineers & Merchants
34 Broadway
Westminister, London, S.W.1
March 31, 1941
(rcd. April 24, 1941)

Superior Valve & Fittings Co.
1509 W. Liberty Ave.
Pittsburgh, Pa., U.S.A.

Dear Mr. Newcum:

Please accept my thanks for your letter of Feb. 21 with enclosures of copy correspondence between yourself and Mr. David Crampton. This is most interesting, and as we have already heard from Mr. Crampton direct with a reprint of his recent article in Refrigeration Engineering we feel certain with the information we have now received from you and Mr. Crampton we will be able to picture the savings which may be effected.

I take this opportunity of saying how pleased we should be to reciprocate your courtesies if ever you need our services on this side, and I am looking forward when the war is over to meeting you personally.

I was particularly interested in the last paragraph of your letter to Mr. Crampton. Naturally it is necessary for us to carry on so far as circumstances permit. Besides, refrigeration is an essential wartime need, and we consider that by carrying on we are doing our bit towards victory. Besides all this the morale here is very high, and we are fairly tough. We have never had any doubt as to the outcome of the present struggle, but it is difficult to express adequately the feeling here of the realization by the United States of the issues at stake for humanity, and of the action your great President has taken to turn your country into the Workshop of Democracy. Surely when this war is over the ideals which the English speaking nations live and fight for will result in a better world and the closer drawing together of all the Democracies.

L. J. WOLF,
Managing Director

Clint Frost Takes Advisory Post In Army

ST. LOUIS—Clint Frost, air conditioning and refrigeration engineer of Sears & Piou, Carrier distributor here, has resigned his position to accept an advisory post in the Army Quartermaster Corps. He will direct refrigeration and electrical construction under the present national defense program.

St. Louis A.S.R.E. Hears Talk By L. L. Lewis

ST. LOUIS—Fifty members and guests attended the final meeting of the 1940-41 season held by the St. Louis section of the American Society of Refrigerating Engineers at BevoHall Restaurant and Anheuser-Busch, Inc. L. L. Lewis, vice president of Carrier Corp. and national A.S.R.E. president, was speaker.

In describing the past and future efforts of the organization, Mr. Lewis pointed out how membership in the national association has enabled refrigeration engineers to meet with ease many of the outstanding problems of national defense pressure, and how exchange of information and installation techniques throughout the country has helped many members.

Membership during the past season has increased 10% reported G. Gygaz, president of the St. Louis section.

'Charge It,' Suggests Refrigerant Folder

NEW YORK CITY—What starts out as a piece of direct mail from a "credit" millinery store ends up, when completely unfolded, as a suggestion from Mathieson Alkali Works, Inc. to recharge refrigeration systems this spring "to meet hot weather's challenge."

The address side has a colored reproduction of a hat with the words "Charge it!" Next fold shows four hats, and their attractive wearers, and reads, "Not That Easter Bonnet—." "But that refrigerating system!" is the caption of the center spread.

In addition to suggesting the recharge, the center spread lists the firm's 46 warehouses and has a reply postcard for obtaining the new 16-page booklet entitled "Mathieson Anhydrous Ammonia."

The Service Man's Notebook

By Henry Kronke

Mr. Kronke, a service engineer in New York City, compiles useful, handy data for use in his work as he finds a repeated need for certain kinds of information. The editors suggest that service and installation engineer readers of the NEWS cut these tables out for their own notebooks.

PRESSURE SWITCH SETTINGS

This table of pressure switch settings is taken from recommendations made in various manuals and catalog engineering sheets, and does not take pressure loss through suction lines into consideration.

	Temp. Req., F.	"Freon-12"	CH_3Cl	SO_2
Bottle cooler, Liquid Carbonic	38°			7 lbs.— 2 in.
Root beer barrel	38°			9 lbs.— 1 lb.
Instantaneous cooler	38°	34 lbs.—16 lbs.	25 lbs.—10 lbs.	10 lbs.— 1 in.
Soda fountain, water bath only.	40–42°	34 lbs.—17 lbs.	25 lbs.—11 lbs.	10 lbs.— 0 lbs.
Soda fountain, water bath only.	38–40°	28 lbs.—12 lbs.	20 lbs.— 6 lbs.	7 lbs.— 5 in.
Soda fountain, ice cream, jar rack, water cooler		17 lbs.— 0 lbs.	10 lbs.— 6 in.	0 lbs.—18 in.
Soda fountain, thermo-syphon, one boiler				6 in. —18 in.
Soda fountain, thermo-syphon, second boiler for water				0 lbs.—18 in.
Liquid Carbonic fountain, automatic expansion valve on jars set to 4 lbs.				4 lbs.—18 in.
Liquid Carbonic fountain, thermostat on ice cream, pressure switch on unit		30 lbs.—10 lbs.		
Russ fountain, ice cream only		10 lbs.— 2 in.	5 lbs.— 8 in.	
Russ fountain, water and jar rack only		20 lbs.— 9 lbs.	13 lbs.— 4 lbs.	
Russ fountain, solenoid on ice cream and water		14 lbs.— 4 in.	8 lbs.—10 in.	
Soda fountain, thermostat on ice cream in parallel with pressure switch for water and jars		24 lbs.— 8 lbs.	17 lbs.— 3 lbs.	
Ice cream freezer and hardening cabinet on one unit, automatic exp. valve on freezer set to 7 lbs., automatic exp. valve on hardening cabinet, 11 inches; thermostat and pres. switch		6 lbs.— 8 in.		
Ice cream freezer	0°	15 lbs.— 0 lbs.	9 lbs.— 6 in.	
Ice cream cabinet, hardening	—20°	0 lbs.—14 in.	6 in. —18 in.	
Ice cream cabinet, package disp.	— 5°	6 lbs.— 4 in.	2 lbs.—10 in.	10 in. —20 in.
Ice cream cabinet, bulk dispens.	5–10°	11 lbs.— 1 lb.	6 lbs.— 4 in.	6 in. —16 in.
Salan pan	38–40°	34 lbs.—17 lbs.	25 lbs.—11 lbs.	10 lbs.— 0 lbs.
Salad pan	36°	32 lbs.—17 lbs.	23 lbs.—11 lbs.	9 lbs.— 0 lbs.
Water cooler	50°	45 lbs.—20 lbs.	35 lbs.—13 lbs.	17 lbs.— 2 lbs.
Water cooler	45°	40 lbs.—20 lbs.	30 lbs.—13 lbs.	14 lbs.— 2 lbs.
Water cooler	40°	34 lbs.—19 lbs.	25 lbs.—12 lbs.	10 lbs.— 1 lb.
Short order box, defrosting	45°	34 lbs.—17 lbs.	25 lbs.—10 lbs.	10 lbs.— 0 lbs.
Short order box, not defrosting	45°	27 lbs.— 9 lbs.	19 lbs.— 4 lbs.	6 lbs.— 9 in.
Frozen food display case	10°	12 lbs.— 3 lbs.	6 lbs.— 2 in.	6 in. —16 in.
Milk cooling, aerator, brine	20°	22 lbs.— 9 lbs.	15 lbs.— 4 lbs.	3 lbs.— 9 in.
Milk cooling, bath	35°	26 lbs.— 9 lbs.	18 lbs.— 4 lbs.	5 lbs.— 9 in.
Walk-in cooler, fin coils	38°	34 lbs.—12 lbs.	25 lbs.— 6 lbs.	10 lbs.— 6 in.
Walk-in cooler, blower	38°	34 lbs.—20 lbs.	25 lbs.—13 lbs.	10 lbs.— 2 lbs.
Display case, back or end bunker	45°	34 lbs.—13 lbs.	25 lbs.— 7 lbs.	10 lbs.— 5 in.
Display case, overhead bunker	40°	32 lbs.—14 lbs.	24 lbs.— 8 lbs.	9 lbs.— 3 in.
Display and storage case	38°	32 lbs.—14 lbs.	24 lbs.— 8 lbs.	9 lbs.— 3 in.
Florist refrigerator	50°	37 lbs.—16 lbs.	28 lbs.—10 lbs.	13 lbs.— 1 in.

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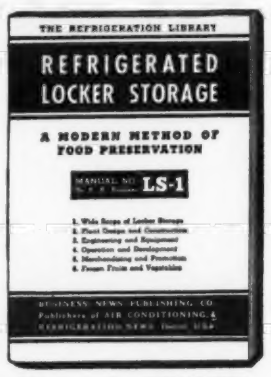
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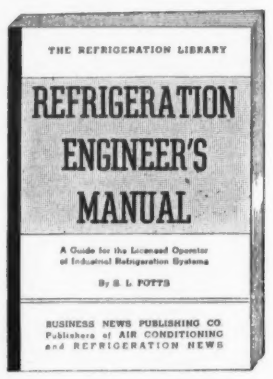
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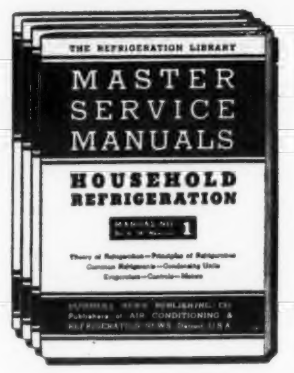

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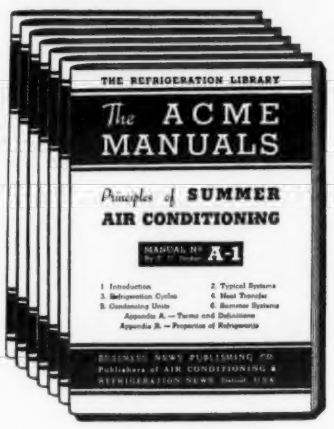
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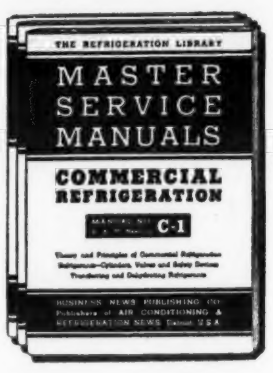

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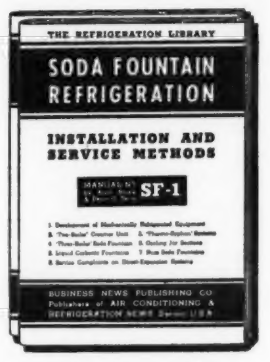
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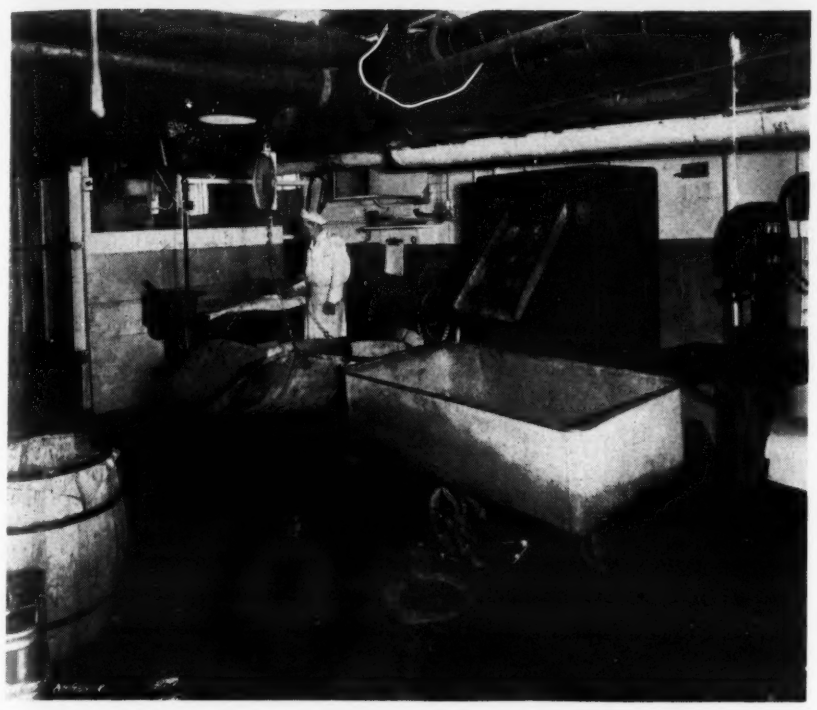


Fish-cleaning-and-packing department of the Supreme Market. The cabinet unit at the right with a chute on it is a York FlakIce machine. FlakIce is used in fish packing, sausage manufacturing, and displays.

Conditioning & Refrigeration Vital To 'Super' Super-Market With 2 1-2 Million Annual Gross

DORCHESTER, Mass.—Air conditioning and refrigeration play a vital role in the business of the Supreme Super-Market and food processing plant owned by Paul and John Cifrino—which does an annual gross business of $2,500,000. Located in this residential suburb of Boston, the market attracts customers from a distance of 10 miles.

The store itself is immense—has 22,000 square feet of floor space, employs 300 people, and is completely air conditioned.

OPERATE FOOD PLANT

Cifrino brothers operate their own food manufacturing plant, located in a second floor space over the main store. Here they turn out 5,000 lbs. of frankfurters a week, 2,500 lbs. of sausage, 1,900 lbs. of pressed minced hams, 1,300 bags of diced vegetables, 500 lbs. of pickles, 11,000 loaves of bread, 6,000 lbs. of cookies, and 1,350 pints of cream.

In addition the store makes its own mayonnaise and baked beans, produces 500 dairy products daily, packs 25 different kinds of fish in FlakIce, and manufactures 27,000 gallons of ice cream a year.

Refrigeration plays an important part in the manufacture, storage, and sales displays of all this food—especially the delicatessen products.

Ice is manufactured with a York FlakIce machine, capable of producing 1 ton of ribbon ice a day. This ice is used in their sausage manufacturing process, for packing fish, and in delicatessen display cases. This method of making ice has been found more economical and satisfactory than making ice in blocks and cracking it—as was done previously.

Refrigeration for low temperature storage of ice cream is provided by six York ammonia systems and 18 small York "Freon-12" refrigeration systems provide independent cooling for each milk and delicatessen products storage spaces, display cases, and for the air conditioning system.

COOLING ATTRACTS TRADE

The York air conditioning system has been found to attract trade to the store, providing a "haven of refuge" in hot weather; it increases the efficiency of employes; spoilage of perishable foods on display is retarded, and infiltration of dust and dirt into the store is reduced.

The year-around air conditioning system employs a York oil-burning boiler as a source of heat in winter.

The Supreme Market does business on a strictly cash basis, does no advertising, takes no orders over the phone, and delivers orders of over $3 if desired. The store cashes over 600 checks per day and employs two notaries public. In addition, the Cifrino brothers have their own cafeteria in the store, and all cooking is done on the premises.

For customers' entertainment, recorded music is provided through an amplyfying system with loud speakers scattered throughout the store. Florist, tobacco, drug, grocery, and candy departments are all concessions.

Mechanical Changes Mark Crosley Cars

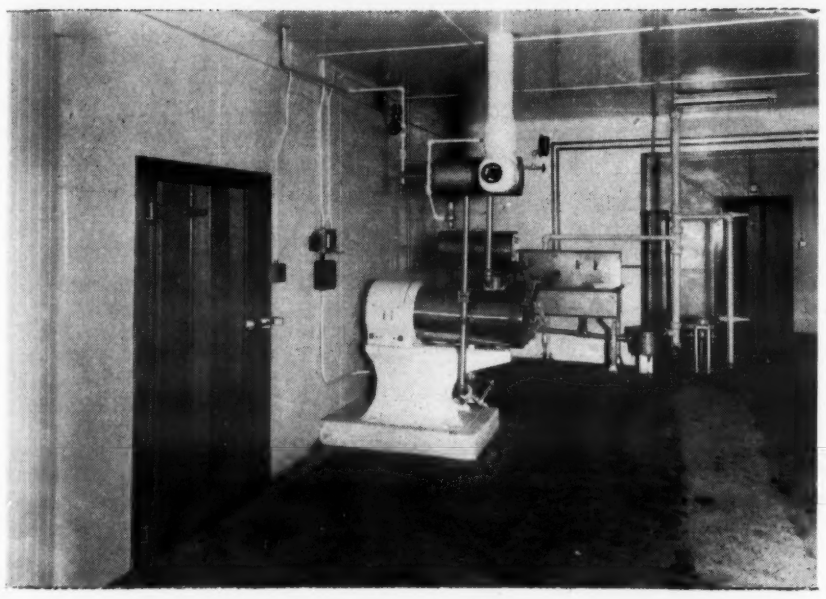
CINCINNATI—Despite the little change in external appearance, new models of Crosley Corp.'s car are said to be markedly improved over the first models, introduced two years ago, due to mechanical changes bettering performance.

A simple change in valve timing has improved torque 40%, it is claimed, providing greater acceleration and hill climbing ability. Constant-mesh electric starting, refined oiling system, and gasoline pump (except on the coupe) are among the new features.

Motor in this year's models is of heavier construction, permitting a heavier crankshaft and heavier camshaft, the latter allowing for more accurate valve timing and consequently cooler and longer-lived valves.

Brakes on all four wheels are self-equalizing, and with molded brake lining make for more positive braking action with less pedal pressure.

Store Remodels Its Ice Cream Department



Remodeled ice cream department. Ice cream freezer is in the center, ice cream hardening and cold storage rooms at left and right.

Defense Keynotes Norge Engineers' Meeting

DETROIT—National defense keynoted the April meeting of the Norge Engineering club here, with members of the engineering department of Long Mfg. division, Borg-Warner Corp., as guests.

Employe relationship, and the need for all around engineers to overcome shortage of men due to the defense program, was discussed by H. E. Blood, Norge president, and R. W. Gifford.

Lieut. James Payne of the Detroit police department spoke on crime detection, ballistics, and tactics of saboteurs. Max Lee showed movies of national shooting tournaments, which was followed by a demonstration of target rifles by John Buchanan.

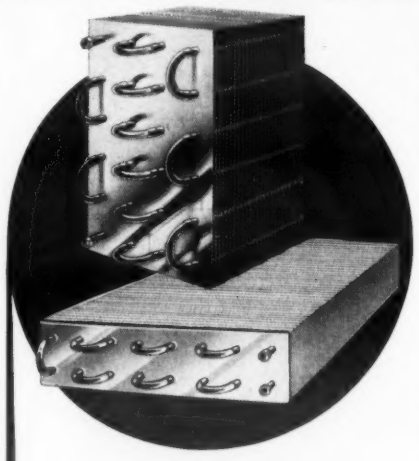
J. Nall Candler was elected vice president to fill a vacancy.

Delaware Becomes 45th State With Law on 'Fair Trade'

DOVER, Del.—A fair trade act, authorizing minimum resale price contracts between manufacturers and retailers, was signed into Delaware law recently by Governor Walter W. Bacon. The action leaves only three states—Missouri, Texas, and Vermont—without such legislation on their statute books. Electric refrigerator and appliance merchandisers had been among the retail interests advocating passage of the new Delaware law.

Ensign Stove Store Adds Westinghouse Line

ALBANY, N. Y.—Ensign Stove Store has taken on the Westinghouse line of refrigerators.



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COOLING

WE ARE SPECIALISTS IN COILS. Every Marlo coil contains over 15 years of coil knowledge and experience.

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Super "V" Coils
Walk-in Cooler Coils
Grocery Cooler Coils
Refrigerator Case Coils
Coils of Special Design

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Send for our bulletin 391, free of charge.

MARLO COIL COMPANY
6133 Manchester Avenue, St. Louis, Missouri
Refrigerating Equipment Manufacturers

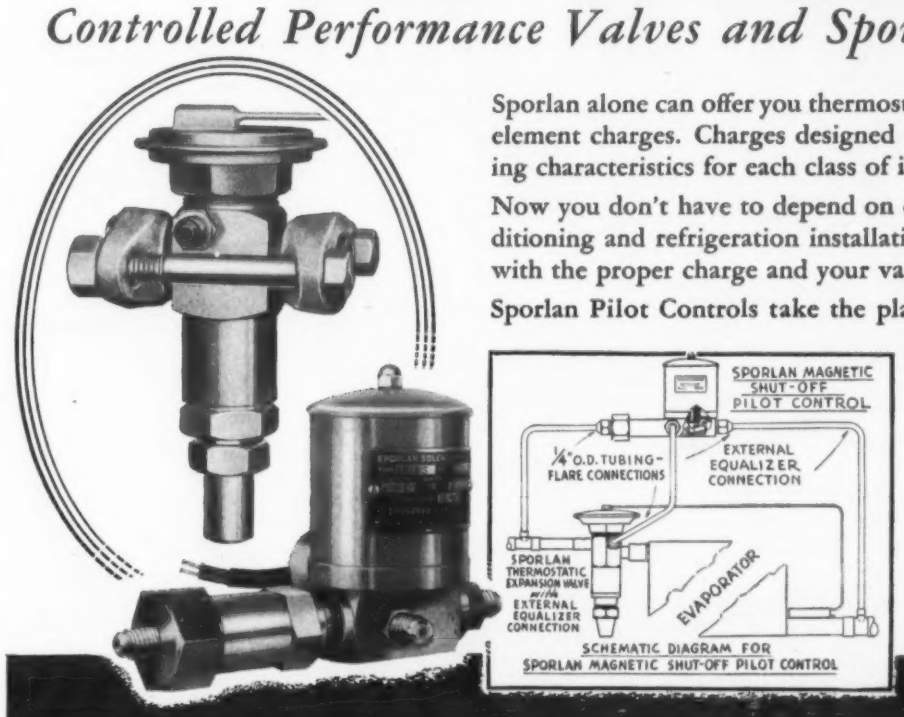
JOE SERVICE...on the JOB!

BILL-YOU MUST BE SLIPPING-WONT YOU EVER LEARN TO LAY OUT AN AIR CONDITIONING JOB THAT WONT FLOOD THROUGH?
THERE'S NOTHING WRONG WITH THESE LAYOUTS JOE-ARE YOU SURE YOU'RE INSTALLING THEM RIGHT?
SURE-IM SURE!
SAY JOBBER, JOE'S COMPLAINING AGAIN ABOUT OUR AIR CONDITIONING JOBS FLOODING THROUGH! HAVEN'T YOU ANY VALVE THAT WILL WHIP THIS PROBLEM?
I'LL SAY I HAVE! WHAT YOU NEED IS SPORLAN SELECTIVE CHARGE THERMOSTATIC EXPANSION VALVES-THEY HAVE A SPECIAL CHARGE FOR AIR CONDITIONING THAT WONT FLOOD THROUGH-AND ANOTHER THING-IF ANY OF YOUR LARGE JOBS REQUIRE SOLENOID VALVES USE SPORLAN PILOT CONTROLS INSTEAD. THEY'RE LESS EXPENSIVE AND CLOSE TIGHTER.
O.K. JOE-HERE ARE THE SPECS ON THE NEW JOB--GOOD LUCK AND I THINK YOUR FLOODING TROUBLES ARE OVER!
YOU THINK THEY ARE-BILL THE DAY YOU DREAM UP ONE THAT DON'T I'LL BUY YOU A BOX OF CIGARS-
BETTER THAN THAT I'LL BUY YOU TWO BOXES!
OH-OH! SPORLAN CONTROLLED PERFORMANCE VALVES WITH SELECTIVE CHARGES, AND A SPORLAN PILOT CONTROL-SOMETHING TELLS ME I'M GOING TO LOSE A BET, BUT BOY!-IT'LL SURE BE WORTH IT!
LATER
BILL, YOU DID IT! NOT A SIGN OF FLOODING THROUGH. THOSE SPORLAN VALVES AND PILOT CONTROLS ARE GOING TO MAKE INSTALLING AIR CONDITIONING JOBS A PLEASURE INSTEAD OF A HEADACHE.
THANKS JOE, BUT ONE OF THESE BOXES BELONGS TO THE JOBBER-HE WAS THE ONE WHO TIPPED ME OFF ON SPORLAN--AND HE'S GOT A REGULAR CUSTOMER FROM NOW ON-WHETHER HE KNOWS IT OR NOT

for Peak Performance on your next Air Conditioning Installation

USE SPORLAN

Controlled Performance Valves and Sporlan Pilot Controls



Sporlan alone can offer you thermostatic expansion valves with selective element charges. Charges designed to give the valves the best operating characteristics for each class of installation.

Now you don't have to depend on one charge for all types of air conditioning and refrigeration installations. Merely select a Sporlan valve with the proper charge and your valve worries are over.

Sporlan Pilot Controls take the place of large solenoid valves on air conditioning installations with the dual advantage of closing tighter and costing less originally.

Standardize on SPORLAN Controlled Performance thermostatic expansion valves with Selective Charges and you can be assured of Peak Performance on every installation.

SPORLAN MAGNETIC SHUT-OFF PILOT CONTROL
¼" O.D. TUBING-FLARE CONNECTIONS
EXTERNAL EQUALIZER CONNECTION
SPORLAN THERMOSTATIC EXPANSION VALVE with EXTERNAL EQUALIZER CONNECTION
EVAPORATOR
SCHEMATIC DIAGRAM FOR SPORLAN MAGNETIC SHUT-OFF PILOT CONTROL

SPOEHRER-LANGE COMPANY
3725 COMMONWEALTH AVE. • ST. LOUIS, MISSOURI

Run Your Business From Facts - - Not Rumors

Planning, Program Needed To Get Data on Field Conditions

Editor's Note: The following talk was presented by Mr. LeBaron under the title "Methods of Collection and Analysis of Data on Field Conditions" before the annual meeting last week of the Refrigeration Equipment Manufacturers Association. It outlines a method of organization and procedure for procuring a statistical picture of field sales and market conditions, and depicts the type of results that can be obtained.

By Robert LeBaron, Sales Manager, Virginia Smelting Co.

Factual backgrounds are at all times essential to sound business planning and policy preparation. In the present time of emotional stress and rapid rate of change such backgrounds assume even greater values.

One of the outstanding characteristics of business growth in the United States, particularly as it applies to distribution, is the increasing submergence of the human contact relationship between the manufacturer and the user in favor of a statistical picture in which the human element values are masked by a series of indexes and percentage relationships.

All of us realize that we cannot properly conduct our business without an understanding of human element values, but it is equally true that we cannot make the most of our business opportunities unless the individual human element characteristics with which we come in contact are screened through a statistical sieve which classifies their relative importance in the overall perspective of the general picture.

This paper summarizes the experiences of one Rema member that has actively wrestled with the development of a routine fact-finding system for the collection and analysis of field data. Its presentation before this group is made in the hope that other members of Rema may find something of common interest in the comparison of their own methods with the picture presented here; and in the belief that discussions of fact-finding methods contribute to the stability of the industry.

Most of our troubles come from ignorance. We never knowingly back lost causes, but are too frequently prone to put our money on something which is dramatized out of proportion to its importance.

Our program of fact-finding required the following prerequisites:

(a) A definite statement of objectives and purpose scope.

(b) Establishment of common denominator language between refrigeration industry and ourselves.

(c) A simple and quick means of documentation of data.

(d) A knowledge of the type of thinking which characterizes the decisions of leading figures in the industry.

(e) An educational system for field personnel.

(a) Definite statement of objectives and purpose scope

The objective and scope of survey activity must be thoroughly discussed in advance with all the parts of the organization who are to use the results. Otherwise, pertinent information will be omitted and the end picture will not be complete for all concerned. In our own case, we did not obtain a satisfactory setup until two previous efforts based over an interval of three years had failed.

The scope of effort must be scaled down to the point where the field collection work involved can be done as an incidental operation to other organization duties. Work of this character can never achieve a self supporting basis with sales volumes of the order involved in our Rema activities. At the same time, the process of concentration must not extend to the point where the results obtained are too small for any significant conclusions of national value.

The question of area coverage must be carefully balanced between intensity and breadth. If small segments are chosen for intensive study the projection of the results obtained to larger areas may be misleading. At the same time, it is impractical to cover too much territory with the intensity needed to produce something of significant value.

Selling the survey picture begins at home and nothing is more detrimental to a good program than the casual interest of organization members in the beginning which later becomes active after the layout has been completed and is not easy to change.

MUST DEVELOP TERMS, AND QUICK TABULATIONS

(b) Establishment of common denominator language between refrigeration industry and ourselves

It required about 18 months of committee work in Rema to produce an acceptable classification of users of Rema products. The survey picture must rely on uniform terminology in order to study comparative values in different areas but the headaches of a growing industry such as our own are many when there is a steady succession of new minds that apply themselves to the broad picture of distribution and use their own coordinates in terminology. Despite this, it has been possible in our case to achieve a satisfactory common denominator by supplementing the work of Rema classification with our own definitions.

In addition to the problems of common denominator language with the field where there is no available control by you, we must also add the problems of common denominator language for the organization that is to use the survey picture. These can be controlled by company decision but require careful thought if expensive revision is to be avoided. Among such items are sales groupings of prospects in order of customer importance, groupings for direct mail and promotional activity and groupings for credit.

The common denominator finally established must meet the field terminology established by those over whom you have no control and must also meet your organization department views and needs. This cannot be accomplished without many weary hours of discussion and consideration.

(c) Simple and quick means of documentation of data

In a project of this sort a statistical approach to consolidation of data is the only practical one. Simple forms for field use are necessary in the interest of cooperation and prompt reporting. If the report forms are elaborate they require too much time for preparation in the field and are also too long for practical editing at the point of consolidation. From a psychological standpoint it is important to promptly return summary pictures of field collection to the men who handle the field work. Enthusiasm for this work will not continue if the reports are mailed into a bottomless pit from which there is no answer.

Our own experience convinces us that suitable mechanical office equipment and facilities are necessary and also that the field information must be collected in a form which does not require any intermediate editing and can therefore go directly to statistical handling. When we indulged in intermediate editing at our main office, the work was slowed down and the clerical cost became too high. At the same time, the editing destroyed much of the vitality of the reports since the people who did this work were of necessity unfamiliar with field conditions. A straight line service from the field operator to mechanical handling has been our salvation.

The system of documentation used must provide means for keeping data up to date and removal of obsolescent items. This can be handled through the proper correlation of regular field reports with the basic survey information.

(d) A knowledge of the type of thinking which characterizes the decisions of leading figures in the industry.

Each industry comes to develop its own characteristic indexes of motivation which spring fundamentally from the thinking of the "bell cow" members of the industry. Since survey work is primarily concerned with trends and long range projections it must be built with due consideration to special industry characteristics. Otherwise, data will be assembled in forms that are not apt to reveal the motivating forces.

Figures can be made to prove anything—the important thing is to have them represent an analytical cross section of significant forces and avoid assembly which is aimed to support preconceived ideas. Hand picking can do this every time.

It is accordingly important to critically discuss all phases of the program with someone who is in touch with broad industry policies and who is familiar with the ideas of a representative group of active executives in the field. Surveys are hopelessly bogged down if they proceed at cross currents to industry trends.

(e) An educational system for field personnel.

Since the value of conclusions reached are entirely dependent on the accuracy of the field assembly of data, a definite program of instruction and education must precede and periodically check the mental equipment of the field interviewing group. We have found that it is not practical to accept data reported at face value but have been quite successful in preparing a series of simple cross check questions which project the answer which our field men use in their reports to the survey group.

Another factor here is the variation in area characteristics of different parts of the country. Things that seem very important in one section are apt to be secondary in other areas or vice versa. Field men must be educated to the extent where they can adjust their work to meet these variables and yet hold their reports in the common denominator pattern.

All this requires many hours of work in the preparation of educational material and must also be followed up by active and practical personal work between the home office and the field men. If this is not done, there is too much variation in the result reported from different areas, and the broad values which really justify the effort are lost in the variable yardsticks used in the field. Moreover, one of the prime incentives to continued collection in the field is the opportunity to compare values in one area with another.

General Considerations

The growth of fact-finding and survey work has been extremely rapid in the past five years. Its initial urge has presumably been the need for accurate data in the planning of large national advertising programs where substantial commitments were necessary before any performance data was available. In recent years politicians have been quick to grasp the significance of this work and now use their bank rolls for patronage in much the same manner that a national advertiser does when he wishes to step up sales in an area that is behind. Radio has, of course, been the greatest force in this field since its audience is entirely invisible and the measure of successful contact must be judged solely by statistical collection applause.

It is only natural that each of us should re-examine this tool in the light of this national growth in order to see what ideas can do for us as members of Rema either individually or collectively. As an incentive to discussion, we are listing some items which we believe are practical and valuable for individual firms and also other items which may apply to Rema group policies:

For individual companies.

(1) The location and classification of prospects according to potential sales volume. These can run from the largest to the smallest users who are never contacted personally.

(2) Quantitative measure of the effectiveness of company coverage on its products through its various channels of distribution. This is particularly important to most of us in our evaluation of jobber activities in our behalf. It is also an excellent background for sound jobber cooperation.

(3) The establishment of logical sales quotas and the elimination of serious sales effort in unprofitable zones of sales activity.

(4) The evaluation of claims of new wholesale jobber prospects with reference to the business possibilities in the area under consideration.

(5) The establishment of the objectives to be reached in sales promotion work.

For Rema

(1) It could determine the potential sales volume of the market for Rema products.

(2) It could determine distribution of this business between the various competitive functional groups as Rema, Nema, etc.

(3) It could determine the relative importance of different sub-classifications of Rema activity.

All of us are doing some of these things in one form or another. Some of us are doing many more.

There should always be some significant reason for the use of time in discussion of topics presented before our association and in this instance we underscore the intimate relationship between basic stability in our industry and the development and educational use of accurate factual backgrounds. So long as the opportunist slogan "always room for one more" persists, basic stability is crowded out by too much competition and must wait for the elimination of marginal operators. During these periods the sound organizations must work at a disadvantage to themselves and to their customers.

POLARTRON

A Single Control

THAT FITS EVERY NEED

FOR PRESSURE CONTROL UP TO 1 H.P.A.C.

Eight Series 40 Polartron Advantages

Separate "On and Off" Knobs ★ Universal Range ★ Capillary Pressure Connections ★ Fewer Models to Stock ★ Cooling Control on Cut Out or Cut In ★ No Short Cycling ★ Minimum Free Service ★ Polartron Equipped Compressors can be Converted to Produce Frost-Free Constant Cold

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MINNEAPOLIS-HONEYWELL REGULATOR CO.

2807 FOURTH AVENUE SOUTH, MINNEAPOLIS, MINNESOTA

MINNEAPOLIS HONEYWELL REFRIGERATION Control

AUTOMATIC CONTROLS MH

AMINCO SUREDRY DEHYDRATORS

"TAMPER-PROOF" SEALED

Each Aminco Suredry Dehydrator reaches the user "factory fresh" with all its powers of absorption and adsorbing undiminished, and remains in this condition as long as the plastic impervious seals remain on both inlet and outlet connections.

This sealing feature protects your stock of Dehydrators. They cannot pick up moisture from the air and will not deteriorate in stock.

The seals remain in place until immediately before installation thus guaranteeing fresh, active dehydrating qualities from the beginning of their employment on the job.

This feature is in addition to other points of advantage, such as,

- One piece copper shells.
- No joints or threads to cause pockets or leaks.
- Filled with Silica Gel—the fast acting drying agent that does not cake or powder.
- Labyrinth Filtration, with **Five** times the filtering area of the screen surface of wire cloth.
- Inlet filter full diameter of shell.
- Outlet filter on refillable models is a cone of equivalent surface area to inlet filter disc.
- Refillable and permanent models in all wanted sizes.
- Dehydrated and sealed **after** final assembly.

INSURE

Reduced Pressure Drop

100% Filtering Efficiency

Positive Dehydration.

At all good jobbers.

Send for Bulletin No. 23.

AMERICAN INJECTOR COMPANY

1481 Fourteenth Avenue DETROIT, MICHIGAN

Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.

New Electrical Tester Combines Many Functions In a Pocket Size Unit

There are many refrigerator service shops that could well afford to give thought to modernization of their electrical test equipment. In too many cases this consists of separate meters for each type of measurement, a miscellany of connection cords, etc. True such equipment serves its intended purpose, but it does so at a sacrifice of time and convenience.

Instead of cluttering up the service kit with such equipment it is possible today to obtain a single compact instrument, small enough to fit into a coat pocket if need be, which will make every electrical test required in the servicing of refrigerators—and do it in a matter of seconds.

The instrument shown in the photograph illustrates the compactness of this new type of meter and the convenient panel arrangement. This model 417 of the Radio City Products Co. provides for measurements of line voltage, current and power consumption, and offers a total of 13 measurement ranges, all of which may be employed with both a.c. and d.c. line supply. Such a meter finds utility in refrigerator servicing, especially as it provides for measurement of current up to 25 amperes, of power up to 6,000 watts, and of voltages up to 250.

Instrument face of the new "all-in-one" electrical tester.

SMALL AND FAST

Of no less importance are the factors of speed and convenience with which it enables the service man to make thoroughgoing tests of refrigerator motors—tests which often provide definite clues to the causes of faulty operation and which represent the first steps in the "trouble shooting" routine adopted by a goodly proportion of the refrigerator service fraternity.

To initiate such tests on motors drawing under 600 watts, for instance, it is only necessary to plug this instrument into the line and in turn plug the refrigerator into the standard receptacle mounted on the instrument's face, just above the meter. With the "Volts-Amps" switch in the "Volts" position the line voltage is immediately read on the 250 volt scale.

In making this measurement it isn't even necessary to know whether the line supply is a.c. or d.c., although this will usually be known. If the "a.c.-d.c." switch is set in the "d.c." position and the meter shows no reading it will be an indication either that the line is dead or that the supply is a.c.

Downward movement of the pointer indicates d.c. supply but with polarity reversed. In the latter case the condition is of course corrected by reversal of the instrument plug. If no reading is shown, the "a.c.-d.c." switch is thrown to the "a.c." position and the meter will then show a proper reading, unless the line is dead.

CHECKING CURRENT DRAIN

Having determined that the line voltage is normal the next point of interest is the current drain. This is measured by setting the range selector switch to the 5-amp. range, throwing the "volts-amps" switch to the "amps" position and then reading the current directly from the appropriate "a.c. amps" or "d.c. amps" ranges as the case may be.

With these same settings of the switches the power consumption is indicated on the "watts" scale. Actually this scale gives direct readings in watts only where the line supply is d.c. If it is an a.c. line the power factor of the load must be taken into consideration. To facilitate the necessary conversion in such a case a chart is provided with the instrument which eliminates all calculation. This same chart also provides for instant conversion of power values where the line voltage is appreciably different from the conventional values of 120 or 240.

In testing commercial refrigerator equipment where the current drain exceeds 5 amperes the power line may be connected direct to the equipment, or if a line cord is used it will terminate usually in a special heavy-duty plug which will not fit the receptacle on the instrument face. To provide for these conditions the high current and power ranges of these instruments are made available through binding-post terminals for direct connection into the supply circuit.

There is definite convenience in using a single meter for all types of reading but oftentimes this convenience is offset through the necessity for reading all current ranges from a single scale, for instance. If this is a 1-amp. scale and the 5-amp. range is being used, then all indications must be multiplied by 5, and so on. In these modern instruments this mental arithmetic is eliminated almost entirely. In the one illustrated, for example, the meter face bears four scales and 12 calibrated ranges. All of the more commonly used ranges therefore are direct reading.

From the economic standpoint these instruments have another marked advantage in that their cost is low enough to justify equipping each position in a shop with its own. This means not only less running around on the part of workers in search of the shop's one set of meter equipment, but also less handling and therefore proportionately reduced chance of breakage.

Hutzler Appliance Dept. Moves To Annex

BALTIMORE — Refrigerator and major appliance department of Hutzler Bros. department store has been moved from the fifth floor of the main building to the annex at 315 N. Eutaw St.

Mills Changes Policy On 3-Phase Jobs

CHICAGO—Mills condensing units, beginning with the 1½-hp. size and up, where 3-phase operation is specified, will, in the future, be furnished with the same horsepower motor as the rated horsepower of the condensing unit, according to F. E. Jernberg, sales manager of the Mills commercial refrigeration division.

In other words, a 1½-hp. condensing unit will no longer be stepped up to a 2-hp. motor, but the unit will be equipped with a 1½-hp. 3-phase motor.

This will not apply to units smaller than 1½-hp. where motors will still be stepped up to the next larger size where 3-phase operation is specified.

New prices on models of 1½ hp. and over have been added to catalog information and covered in sales bulletin No. 5, issued by the company.

Warren Norge Goes on Air Three Times a Week

NEW YORK CITY—Norge refrigerators are receiving a three-times-a-week radio plug here in the metropolitan area since Warren Norge Co., Inc., distributor, started sponsoring "Music of Today," an early morning musical program, every Tuesday, Thursday, and Saturday over radio station WABC.

Success of Norge's southern distributor in stimulating sales through a regular advertising program over station WBT in Charlotte, N. C. prompted the action taken by Warren Norge Co. here.

When the Show Comes To Town - - Join It

When the Western New York Restaurant Association held its convention and show in Buffalo, Fedders Mfg. Co. put on an exhibit under the direction of Sales Manager "Bill" Keefe. Above picture shows attractive booth setup, with Charlie Rittling and "Duke" Wellington in charge.

Now Is the Time To Display & Sell Service Tools

COLUMBUS, Ohio—Like any other mechanic, refrigeration service men can always use an extra tool or two—and with business conditions better, a complete display of first-class tools can be turned into a nice source of "plus" sales for the jobber, the local branch of Williams & Co. finds.

In only a few weeks, such a display already has accounted for a noticeable increase in demand for such equipment, the company reports. When business is so-so, the refrigeration service man gets along with whatever equipment he has, it seems—but when things pick up he's interested in a couple of new screwdrivers, or pliers, or a hammer—things he's perhaps been wanting for a long time.

He'll get along with low-priced stuff when he has to—but when he feels that he can afford it, he wants the best tools he can get. Most commonly used tools are always the best sellers—but one sure sign of better business is a pick-up in sales of the tools he doesn't use so often, such as tubing benders, etc.

Take it from Men Who Know—

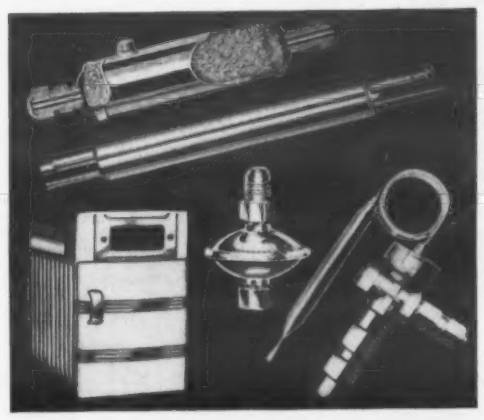
it pays to use

KELVINATOR

Refrigeration Parts and Supplies

Service men with a reputation for dependable service work make sure that the refrigeration parts and supplies they use are RIGHT! Behind Kelvinator parts and supplies stand experience and technical knowledge unsurpassed in the industry. What's more, they're priced right to enable service men to get and hold more business. And Kelvinator's nation-wide system of strategically located warehouses makes possible prompt deliveries anywhere.

Yes, it pays to standardize on Kelvinator refrigeration parts and supplies!



The Kelvinator line includes air and water cooled compressors in types and sizes suitable for all commercial and household installations, as well as all kinds of replacement parts and supplies for service and installation work.

Get More— Get KELVINATOR

Kelvinator Commercial, Parts and Service Division, Nash-Kelvinator Corporation, Detroit, Michigan.

Gentlemen: I want to know more about Kelvinator's ☐ Refrigeration Parts and Supplies. ☐ Commercial Line.

Name.....

Address.....

City ..... State .....

K-120

Anaconda Copper Refrigeration Tubes Unusually soft!

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

HERMAN GOLDBERG CO.
MANUFACTURERS' AGENT

RANCO CONTROLS — ANSUL REFRIGERANTS
STANDARD EVAPORATORS
D.P.N. DEHYDRATORS CHICAGO SEALS
20 N. WACKER DR. - CHICAGO

Welders at Work on Coils In New Peerless Plant

These two additional pictures taken at the new plant of Peerless in Marion, Ind. show welding operations.

Dallas Firm Handling 6 Air Conditioning Jobs Ranging From Church To Apartment House

DALLAS, Tex.—Six air conditioning installations ranging from 25 to 100 tons—in an apartment house, bowling alley, church building, fraternal organization building, department store, and office building—are currently being handled by Carrier-Bock Corp. here.

An evaporative cooler system in the Highlander apartment house, one of the largest in Texas and the first in the state to be air conditioned, is being replaced by two Carrier 50-ton units, which will be driven by gas-fired engines.

Thirty tons of equipment, including three compressors and an evaporative condenser, are being installed in the new Scottish Rite temple here. The installation, planned to permit independent operation of units, will provide water cooling and conditioning of two lodge rooms and two suites of offices.

Four compressors totaling 75 tons comprise the installation in the Dallas Baptist building, where a first-floor bookstore, auditorium, and offices on upper floors will be conditioned. The office system is zoned.

In the Sid Henry bowling alleys, now under construction, there will be 18 tons of conditioning to provide localized cooling for bowling areas. Three compressors and two evaporative condensers are in the system. Refrigeration for the catering section of the alleys will be installed by Brunswicke-Balke-Collender.

A. Harris Co., Dallas department store, is furnishing a new annex area with 25 tons of air conditioning, provided by one compressor and an evaporative cooler.

Two units, one in the basement and the other on the second floor, provide 25 tons of conditioning for the Sinclair building, Fort Worth, Tex. The evaporative condenser for this system is placed on the roof.

60-Ton System Goes In Women's Shop

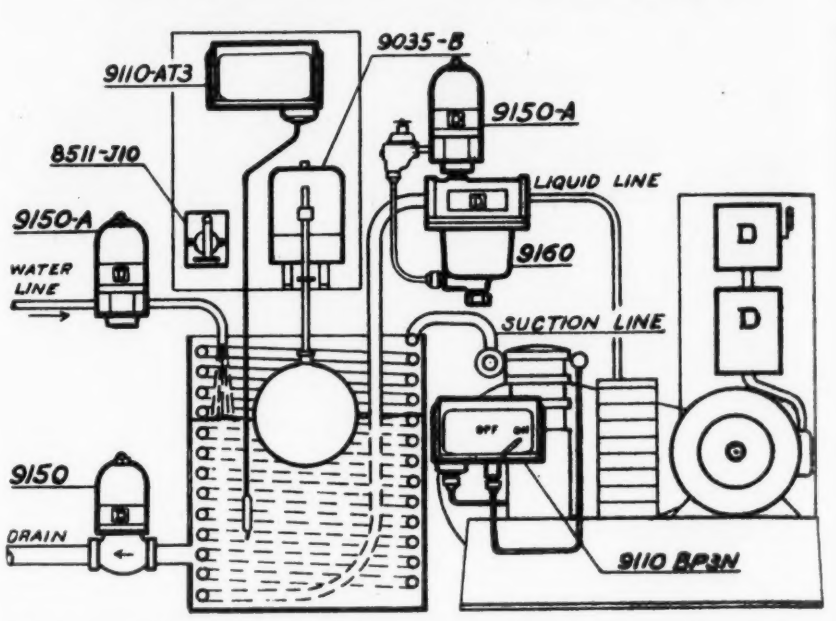
BALTIMORE—A 60-ton York air conditioning system has been installed in Bonwit, Lennon & Co., women's specialty shop here. The installation was made by Maryland Refrigeration Co., Inc., York distributor here, in connection with the complete remodeling of the establishment.

Philco Names Meggs

DALLAS, Tex. — The Meggs Co. has been appointed dealer here for Philco refrigerators.

'Rube Goldberg' Refrigeration Hookup 'Field Tests' Square D Control Units

Solenoid Valves, Temperature Control, Booster Included In Water Cooling System



Eight refrigeration and two pump items are tested by the above system, which cools a barrel of water every 20 minutes which operation of the controls is carefully recorded on charts 24 hours a day.

* * *

DETROIT—Although engineers in the laboratory of Square D Co., regulator division, jokingly label it a "Rube Goldberg," the unusual refrigerating apparatus constructed by Joseph Gasloli provides accurate "field" tests for eight refrigeration items and two for the pump industry manufactured by the company.

The "all-in-one" test setup operates day and night, recording charts keeping a close check on the controls being tested so that the slightest failure is revealed. Doubling up on a couple of items makes possible the imposing of a different set of conditions on the same device, thus obtaining additional data.

CONTROLS TESTED

A 2-ton Brunner compressor and a barrel for water comprise the basis of the setup. Controls tested include: a Class 9160 capacity booster valve (automatic expansion valve pilot), 9150 solenoid valve (also in booster pilot circuit), 9150 solenoid valve on water line (city pressure), 9150 special 1 inch orifice valve, 9035B S.P.D.T. float switch, 9110 AT3 temperature control, 9110 BP3N dual control with manual off switch, 8536 polyphase motor starter, 8511J relay, and 91351 safety switch.

In operating this test setup, the running cycle starts when warm water surrounds the evaporator coils in barrel (see diagram). Temperature control valve (9110 AT3) is closed, energizing the solenoid valve on the booster valve, which unloads the refrigerant below the booster piston, thus causing it to open.

When the booster valve opens, the suction pressure increases, causing the 9110 BP3N low side control to close, energizing the magnetic starter, which, in turn, starts the compressor. With the compressor running, the booster valve controls the flow of refrigerant into the evaporator coil, acting as an automatic expansion valve following the pilot action of the small automatic expansion in the by-pass circuit.

The temperature of the water then drops to the predetermined cut-out point of the temperature control valve. When this control opens, the 1 inch orifice solenoid valve is energized through one pole of the 9014 float switch. The cold water is passed down a drain and the water level drops to the operating point of the float switch.

At the same time the solenoid on the booster valve is de-energized, closing the booster valve and causing the suction pressure to drop down to the cut-out point of the low side control, and the compressor stops.

WHAT HAPPENS NEXT

When the float switch operates, the 1 inch solenoid valve is de-energized and the 7/32 inch solenoid valve is energized, permitting city water to flow into the tank. As the liquid level rises, the warmer water contacts the bulb of the temperature switch, which closes and starts the next cycle.

While this occurs, however, the inlet solenoid is still letting water flow into the tank until the float switch operates. When the float switch operates, the inlet solenoid is de-energized and the flow of water into the tank is shut off. The compressor is then running on the next cycle.

Only complaint made about the setup, reports Engineer Gasloli, is that every 20 minutes a barrel of cold water is wasted down the drain.

Winter Furniture Co. Moves To New Quarters

HOUSTON, Tex.—Winter Furniture Co., electric refrigerator and appliance dealer, has moved to new quarters at 220 Broadway here.

MANUFACTURERS, ATTENTION!

22% +

INCREASE IN NET PAID TERM SUBSCRIPTION CIRCULATION* DURING THE LAST TEN MONTHS BRINGS AIR CONDITIONING & REFRIGERATION NEWS TO STILL GREATER LEVEL OF READER ACCEPTANCE.

AND MORE AND MORE READERS WILL TURN TO "THE NEWSPAPER OF THE INDUSTRY" AS TIME GOES ON . . . . . BECAUSE "IT IS IMPORTANT TO KNOW IN TIME."

YOUR ADVERTISING MESSAGE REACHES THE HEART OF THE INDUSTRY THROUGH THE NEWS . . . . . AND IN TIME TO BE EFFECTIVE.

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Air Conditioning & REFRIGERATION NEWS

The Newspaper of the Industry
Written to be Read on Arrival
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FOR JARROW GASKETS

Think of it. Not 50%, not 75%, not 85%—but a full 100% of all recognized refrigeration jobbers in the New England States sell JARROW DOOR GASKETS. The universal acceptance and endorsement by expert buyers doesn't just happen. JARROW is preferred simply because the quality is right—the price is right—and the line will service more than 90% of all refrigerators and cooling rooms in use. Try JARROW yourself on your next re-gasket job.

Most Complete Line of Refrigeration Gaskets and Sponge Rubber Insulation

MANUFACTURERS - Send us your gasket specifications

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Factories: Chicago and Grand Rapids

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Larson Finds

Visible Records of All Accounts Speed Up Jobber's Counter Work

By Henry Knowlton

MILWAUKEE — Visible records for all accounts carried by the company and for net prices of all equipment sold to service men are being installed by the Gustav A. Larson Co., refrigeration supply jobber here. The former enables the firm to see the exact status of any account instantly, and the latter is being used to eliminate figuring discounts every time invoices are made out for material sold.

The system used for accounts employs a stiff yellow card and with this card are filed double white sheets. The yellow, or master card has the name and address of the customer at the bottom, data on credit rating, follow-ups for collection letters, and references. At the top is space to post the amount of materials purchased each month over a six-year period, and by reversing the card in the file, and using the other side, the card will serve as a continuous master record for 12 years.

In connection with the master card, the double white sheet is ruled with space for date, folio or invoice number, debit, credit, and balance. Entries from invoices are made on these sheets daily, and the balances are figured on every transaction. Thus, if an order for material comes in over the telephone, the accountant can tell at a glance how much the customer owes.

All records for the five-branch system of the Larson Co. are kept in Milwaukee. When invoices are received from the branches in Green Bay, Oshkosh, Madison, or Rockford, Ill., they are recorded in the visible records, and the materials are shipped from Milwaukee to the branch, to maintain the perpetual inventories that exist in these units. Each branch has its own color invoice, shipping tags, and designating letter on the invoice number, so it is easy to route materials out of stock every night.

The original invoice, which is made with several copies, is used to bill the customer, with the name and address showing through a "window" envelope. Men working at the Larson company counters are trained to print the name and address clearly on the invoice, so it may be sent out through the mail, and the typing of thousands of envelopes is eliminated. Light weight papers are used to save postage.

To eliminate the "all day job" of figuring complicated discounts from catalog prices, the Larson company has worked out a system of "net" prices—recorded on visible file cards measuring about 5 by 7 inches. Each card has all the model numbers for one manufacturer, and the price to the trade opposite. Thus when a service man comes in to buy a belt—Part No. 700645—the counter man flips the file open to the belt card, and instantly gets the net price—instead of having to stop and figure one or possibly two discounts.

Mr. Larson reports that while it is taking considerable effort to set the system up, when it is finished it will be comparatively easy to record price changes, as they occur, on the file cards. The system is already proving to be a tremendous time saver, and eliminates holding up a line of customers while waiting to figure discounts.

One of the most important things in the jobbing business, Mr. Larson has found (next to keeping collections up to date), is the turnover of stock. Inventory records are kept by manufacturers, and by dividing the total purchases from one manufacturer for the previous year by the normal inventory, Mr. Larson is able to find out how many times the stock turns over. For example, if the Larson company purchased $12,000 worth of material from one concern in 1940 and the normal amount of inventory stock was $2,000—dividing would give a six times per year turnover.

Mr. Larson believes that stocks should turn over at least six times a year, and when the "turnover" drops below this figure, the manufacturer's stock is reduced until that figure is reached.

Close control of inventories is essential in a growing jobbing business, Mr. Larson has found, because it is very easy to have inventories gain more rapidly than gross sales. As the demand for refrigeration supplies and parts increases, the stock is increased.

Mr. Larson has developed a method for dealing with overdue accounts that has an interesting psychological angle. If John Doe comes in and wants to buy materials when he has an old account of, say, $100—Mr. Larson does not tell John he will have to pay cash until the old bill is paid.

Mr. Larson simply asks John to charge the materials, instead of paying for them, and pay a little more than their value on the old account. If the materials purchased cost $8—and John has a $10 bill—ready to pay for them (as he suspects his credit is exhausted), Mr. Larson says: "Here, John—your credit is good—we will charge the $8 worth of parts and credit the $10 on your old bill."

In this way old accounts are gradually reduced.

There's a Card Like This For Each Customer

GUSTAVE A. LARSON CO
SALES RECORD

SALES DATA	MO.	19	19	19	19	19	19
	JAN.						
	FEB.						
	MAR.						
	APR.						
	MAY						
	JUN.						
	JUL.						
	AUG.						
	SEP.						
	OCT.						
	NOV.						
	DEC.						
	TOTAL						

BUYER | TITLE | REMARKS

CREDIT RATING

RATED | DATE | BANK | ADDRESS | REMARKS | TERMS

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | COLLECTION 1 2 3 4 LEGAL ACTION

NAME | ADDRESS | CITY | PHONE

Personalities In a Jobber's Store

Gustav A. Larson, president of the five-branch G. A. Larson Co., explains the "ins and outs" of the new accounting system, designed especially for refrigeration supply jobbers, to Gertrude Hundt of the company's main office in Milwaukee.

Bud Riebe of the Riebe Refrigeration Co., Racine, Wis., drives to the G. A. Larson Co. at Milwaukee to purchase refrigeration parts and supplies. Mrs. Riebe and Barbara Lou come along—just for the ride.

Williams Publishes Big Catalog For Trade And Customers

PITTSBURGH—Plenty of color distinguishes the new 144-page refrigeration and air conditioning supplies catalog just published by Williams & Co., Inc., supply jobber with outlets in Pittsburgh, Cleveland, Columbus, and Cincinnati.

Cover of the catalog, No. 210, is a photomontage in color centering around the counter in a jobber's store, while the back cover is another photomontage in color featuring various refrigeration and air conditioning machine installations.

Inside front cover is a double-page spread of pictures of the four outlets and sectional city maps of Pittsburgh, Cleveland, Cincinnati, and Columbus to make locating these stores an easier task.

The catalog was designed to "promote the purchase of materials by the trade," and for the "trade to use as a medium for sales in contact with the consumer," explains H. S. McCloud, manager of the refrigeration department.

Ninety-three manufacturers are represented in the catalog. In addition Williams lists several other manufacturers not included in the catalog, but whose products and literature can be obtained upon request. Products listed cover a wide variety.

Last page of the catalog is an air conditioning survey chart suitable for use in determining air conditioning loads.

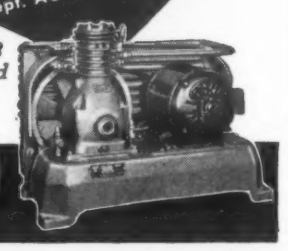
Baltimore Distributor Doubles Dealers In Few Months

BALTIMORE—The Baltimore division of Simon Distributing Corp., Hotpoint distributor, has doubled the number of Hotpoint dealers in the Baltimore area during the past several months. Headquarters of the Simon organization, which is headed by James H. Simon, are in Washington, D. C.

The Machine For Your Next Job...

If it's a refrigeration job ....no matter how big or how small...we can supply Lipman equipment to fit the specifications. *Let us work with you.*

GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.



Model 153 Water-cooled Machine

Lipman

PARTS SUPPLIES TOOLS

Refrigeration & Air Conditioning

COMPLETE STOCK
QUICK SERVICE

No matter what parts, supplies or tools you may need for any type of refrigerator or air conditioner, our COMPLETE LINE can meet your requirements promptly. All QUALITY MERCHANDISE. Deal with Airo; you can rely on getting exactly what you order. Airo prices are lowest wholesale prices obtainable. Orders are shipped the same day received. WRITE FOR NEW, COMPLETE CATALOG. It's FREE.

Send for BIG FREE CATALOG

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ON THE JOB REPLACEMENTS

FOR ALL LEADING MAKES OF AUTOMATIC REFRIGERATORS

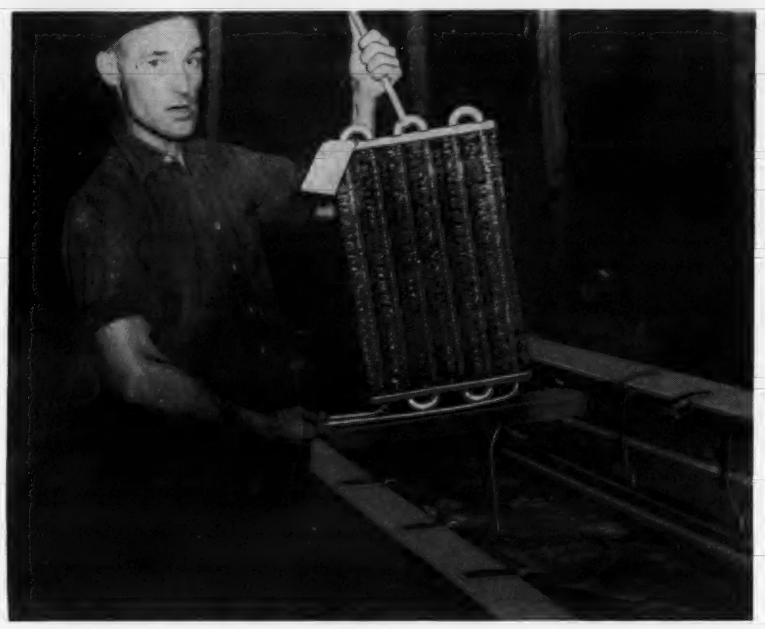
Compact—Durable—Easy to Handle

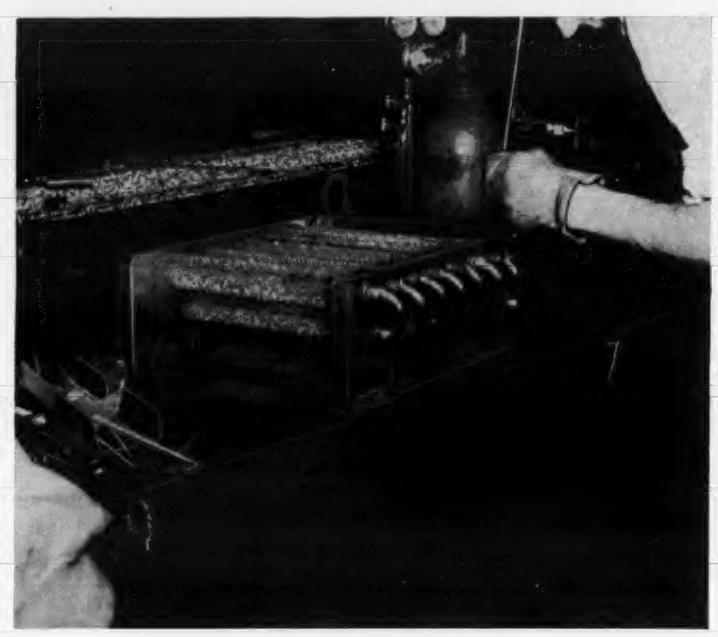
Open on the Job—43 Belts at Your Finger Tips

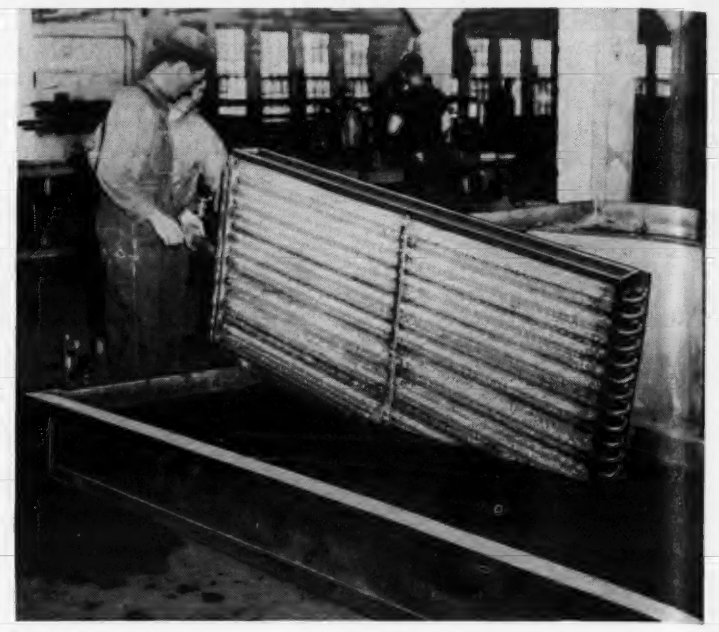
Get the Dayton V-Belt Service Kit for "on the job" V-Belt replacement service and save call-backs, delays and customer squawks. Easy to handle, this compact, durable Swedish Fibre case contains an assortment of 43 fractional horsepower V-Belts at your finger tips plus a handy V-Belt Matchometer. Here's the portable, profitable answer to "on the job" V-Belt replacements for all leading makes of automatic refrigerators including Frigidaire, General Electric, Kelvinator, Norge, Westinghouse and others. Costs only $23.48 and pays for itself out of gas and oil savings.

ASK YOUR DISTRIBUTOR FOR DETAILS OR WRITE TO
THE DAYTON RUBBER MANUFACTURING COMPANY, DAYTON, OHIO
WORLD'S LARGEST MAKERS OF V-BELTS

Peerless of America's New Factory at Marion, Ind. Nears Full Capacity







With some departments operating on a 24-hour-a-day basis, Peerless of America's plant at Marion, Ind. is fast moving into capacity production. At left is shown a workman removing a finished coil made of "thermek" tubing from a plating vat where it is treated to prevent corrosion. After plating the unit is ready for assembly. Center picture shows the processed tubing being placed in frames before the ends are welded to provide a continuous circuit for the refrigerant. At the right may be seen a large coil being placed in a water tank. Compressed air is forced through the coil, and any leaks are immediately discernible because of air bubbles showing up in the water.

Wisconsin Governor Signs Loss Leader Bill

MADISON, Wis. — Gov. Heil on May 1 signed the Peters bill, which amends the 1939 unfair sales act to prevent loss leaders, to provide that "evidence of any advertisement, offer to sell, or sale of any item of merchandise by any retailer or wholesaler at less than cost as defined in this section shall be prima facie evidence of intent to induce the purchase of other merchandise. . . ."

The amendment further clarifies the act by specifying that cost shall be based upon the invoice cost within 30 days prior to the date of sale.

Air Cleaner Improves Television Tubes

FT. WAYNE, Ind.—Manufacture of television tubes in the laboratories of the Farnsworth Radio & Television Corp. is dependent on a supply of clean air. Dirt and dust particles, so small they are invisible to the naked eye, are still large enough to make what would otherwise be a good television tube, bad.

It was found that minute dust particles caused a spotting of the cathode of television dissector tubes during their treatment with photosensitive material, until installation of a 6,000 c.f.m. Westinghouse electrostatic air cleaner removed invisible dust and dirt from the air.

The dissector tube is the heart of the television process; it is the tube that picks up the image, dissects it into separate elements, and converts each image element into transmittable electrical impulses.

The electrostatic air cleaner was installed in the 40-inch headroom space available in the laboratory. The system electrostatically removes 95% of the contaminating particles from the incoming laboratory air by first putting an electrical charge on each particle, then precipitating the charged particles onto collecting plates.

Installation of the electrostatic air cleaning equipment has cleared up the dirt situation in the cathode coating operation.

McQuay Has 2 New Twin Unit Coolers

MINNEAPOLIS—"Zero" panels, a twin junior unit cooler, and a new twin "Chillator" are new models just added to the line of cooling unit products being offered by McQuay, Inc.

"Zero" panels are recommended for high or low temperature work where forced air is not applicable, as in soda fountains, trucks, and special industrial applications. They may be installed horizontally or vertically and may be used with any refrigerant.

The twin fan junior unit cooler has been developed for walk-in coolers, display cases, etc., handling loads up to approximately 1¾ tons and for room temperatures above 35° F., and for average refrigerant temperatures above 25° F.

Cooling element is made of ⅝ inch o.d: seamless copper tubing with fins hydraulically bonded to tubes. Plate type fins are arranged vertically to assist operation on the defrosting cycle. The ratio of secondary surface (fin surface) to primary surface (tube surface) is 13.8 to 1.0 in all elements.

Cabinets have a baked-on white enamel finish and are made of heavy gauge steel, electrically welded. The drain pan is insulated and has been extended to collect the condensation from the expansion valve body.

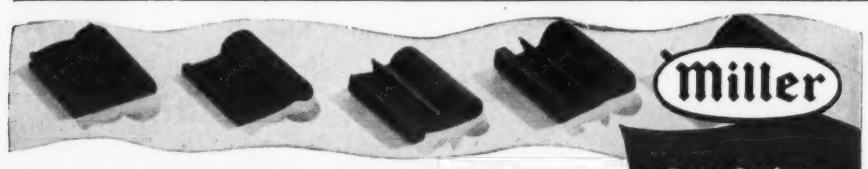
The twin "Chillator" has been added for large reach-in boxes, large refrigerators, and storage rooms where a compact wall-type unit is desired, and has a capacity up to ¾ ton. It is designed for room temperatures above 35° F., and for average refrigerant temperatures above 25° F.

Furniture steel cabinet is finished both inside and out in white baked-on enamel and blends nicely with the finished refrigerator interior. Drain pans are optional and are finished in white baked-on enamel to match Chillators.

The units are usually mounted on the back or end wall of the cabinet or the storage room. Air is drawn in through the fan grille, cooled by the coil, and discharged from the bottom of the unit.

Nema Sales By States For Month of March

States and Territories	Household Low Sides March	Household Low Sides Cumulative
Alabama	4,264	13,046
Arizona	1,535	4,482
Arkansas	3,389	8,746
California	32,854	81,978
Colorado	3,125	8,667
Connecticut	6,720	20,982
Delaware	1,010	2,240
District of Columbia	3,345	8,376
Florida	4,177	12,645
Georgia	6,778	16,417
Idaho	1,430	4,809
Illinois	31,615	85,821
Indiana	11,895	31,732
Iowa	8,282	22,829
Kansas	4,539	11,516
Kentucky	5,304	14,736
Louisiana	3,422	10,865
Maine	1,709	4,904
Maryland	4,575	13,071
Massachusetts	15,599	40,836
Michigan	20,639	55,768
Minnesota	11,337	30,951
Mississippi	2,504	6,820
Missouri	11,124	30,023
Montana	1,284	3,661
Nebraska	2,297	7,599
Nevada	494	1,392
New Hampshire	1,390	3,545
New Jersey	15,090	42,603
New Mexico	563	2,044
New York	35,280	93,379
North Carolina	8,343	22,940
North Dakota	717	1,936
Ohio	26,615	69,715
Oklahoma	3,411	12,151
Oregon	3,677	11,788
Pennsylvania	32,036	88,331
Rhode Island	2,469	7,582
South Carolina	3,378	10,659
South Dakota	936	2,877
Tennessee	7,102	18,370
Texas	18,497	47,426
Utah	1,684	5,588
Vermont	970	2,379
Virginia	7,379	19,315
Washington	6,159	20,316
West Virginia	4,000	10,573
Wisconsin	8,192	27,009
Wyoming	291	1,223
Total United States	**393,425**	**1,076,661**
Canada	5,840	14,458
Other Foreign (Incl. U. S. Possessions)	12,834	31,875
Total for World	**412,099**	**1,122,994**



EVERYTHING IN RUBBER FOR THE REFRIGERATOR

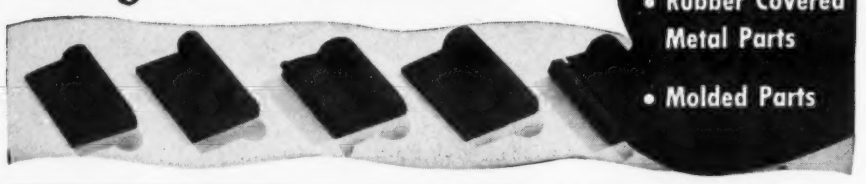
• Door Gaskets
• Unit Mountings
• Sponge Rubber Insulation
• Shelf Hook Shields
• Breaker Collars
• Hard Rubber
• Rubber Covered Metal Parts
• Molded Parts

• Miller offers the service engineer an authentic line of replacement parts that duplicate the original point for point in both design and quality. Each item is an exact duplicate of that supplied the refrigerator manufacturer, made from the same dies, of the same age and grease-resisting rubber compounds.

And because Miller is the No. 1 supplier of rubber parts to the refrigeration industry, it can provide replacements that enable you to service 80% of all boxes in use today. All items are stocked for immediate delivery. For complete information, see your local Miller jobber or write—

MILLER RUBBER COMPANY, INC., AKRON, OHIO

"Engineers in Rubber"



Don't Lose Money on Service Calls due to Motor Failure— use WAGNER

Dependable Air-Conditioning Motors!

Frequent service calls not only annoy the customer but seriously reduce your profit on an installation. Take a tip from the many manufacturers of air-conditioning equipment who are now using Wagner motors. They have found from actual experience that Wagner motors give dependable service under all types of operating conditions.

No matter what type of air-conditioning equipment is involved . . . whether large or small . . . regardless of the torque, speed or current requirements, you can choose a motor from the Wagner line that is correctly engineered for the job.

Wagner maintains 25 sales and service branches conveniently located throughout the country. Each branch carries a stock of motors ready for immediate shipment.

M41-6A

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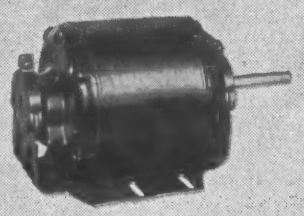
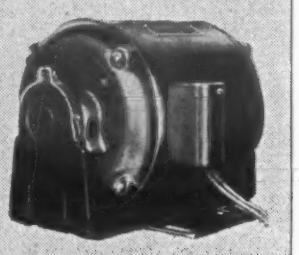
They contain motor information of value to everyone responsible for the installation of motors. Write for your free copies today.

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.
MOTORS • TRANSFORMERS • FANS • BRAKES

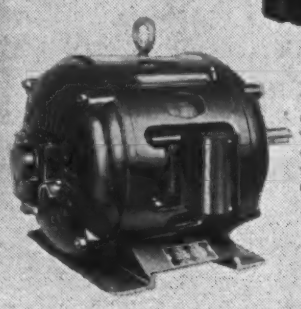
A FEW OF THE MANY WAGNER MOTORS IDEALLY SUITED FOR AIR-CONDITIONING EQUIPMENT



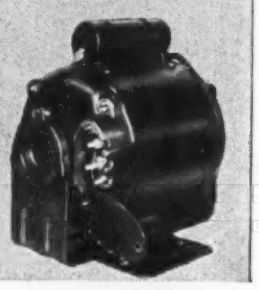
Type M, shaded-pole fan motors are single-phase induction motors of simple construction. Ideal for fan and blower drives in which the fans are mounted directly on the motor shaft. Totally-enclosed and open-type; rigid or resilient mounted; 1/250, 1/125, 1/80, 1/40 and 1/30 hp.



Type RA, repulsion-start-induction motors are single-phase brush-lifting motors having high starting-torque and low starting-current. The ideal motor for heavy-duty applications such as stokers, compressors, pumps, etc. Obtainable in various speeds, frequencies, and voltages; rigid or resilient mounted; 1/8 to 15 hp.



Type RP, squirrel-cage motors are made in 7 electrical types varied as to torque and current characteristics to take care of a wide variety of applications. 2 and 3 phase; 1/6 to 400 hp.



Type RK, capacitor-start induction-run motors are suitable for refrigerators, household air-conditioners, and other appliances. Drip-proof or totally-enclosed end-plates; rigid or resilient mounted; 1/8 to 3/4 hp.

They'll Carry the Load

SQUARE D
CLASS 9110 REGULATORS

Not artificially rated—we invite their use at full name plate ratings. No erratic action. No sticking. No welding.

RATINGS
1 H.P. 110 Volts A.C.
1½ H.P. 220 Volts A.C.
½ H.P. 230 Volts D.C.

DO IT ALL WITH SQUARE D—SWITCH • PROTECT • REGULATE

Jobber Inquiries Invited

SQUARE D COMPANY
REGULATOR DIVISION
DETROIT • • MICHIGAN

Write for Bulletin

Columbus Servicemen's Society Holds 'Finals' In Technical Quiz Contest

COLUMBUS, Ohio—Talks by Dr. W. O. Walker of Ansul Chemical Co. and O. F. Nelson of Temprite Products Corp., the final round of a "true and false" quiz session contest, and a fish fry with Ansul's famous smelts gave the Columbus chapter of R.S.E.S. a large evening at its meeting here last month.

The quiz contest had started at a previous meeting, at which Ned Mason of Refrigeration Electric Supply Co., arrayed in an ill-fitting tux, derby hat, and goggles, took the role as Prof. Willie "Slippery" Frigidquiz. Members were advised that prizes would be given for all answers correct or otherwise, with two special prizes for the two final contestants consisting of a special oiler and pocket thermometer combination, and an Imperial Tube fitter. Prizes were donated by Republic Electric Supply Co. and the Williams Co.

The "prizes" given to all contestants turned out to be a small drink of wine for a correct answer, and a smell of the cork for an incorrect reply. After 85 questions had been asked there were still six contestants with perfect scores, so it became necessary to hold the finals at the recent meeting. Winners of the first two prizes were Wayne Chaney, a service man who runs his own shop, and E. L. Long, United Refrigeration Service.

H. L. Scott of the American Sales Co. and president of the Columbus chapter conducted the "true or false" program. Questions and answers in the finals were as follows:

Question: Ammonia is not used for household refrigerators.

Answer: False. Electrolux employs ammonia.

Question: An air conditioning compressor employs a gear type oil pump for pressure lubrication of the bearings. The oil pressure gauge shows 80 pounds pressure. The gauge reading the refrigerant pressure in the crankcase shows 40 pounds. The oil pressure to the bearings is 80 pounds.

Answer: False. The oil pressure is 40 pounds. If the oil pressure gauge read 40 pounds there would actually be no oil pressure to the bearings.

Question: It is possible for the wet bulb reading to be the same as the dry bulb reading.

Answer: True. At 100% relative humidity the wet and dry bulb readings are the same.

Question: When the air temperature is below freezing there is no moisture contained in the air.

Answer: False. While the quantity of moisture air can hold below freezing is small it still contains moisture.

Question: A ½-hp. brine circulating pump is replaced with a new 1-hp. brine circulating pump. This exchange adds an additional heat load to the system.

Answer: True. A ½-hp. pump dissipates approximately 1,272 B.t.u. per hour to the medium being circulated whereas a 1-hp. pump dissipates approximately double this amount.

Question: Most of the modern drinking water coolers employ approximately 25° refrigerant temperature in obtaining 50° drinking water.

Answer: False. The refrigerant temperature is usually from 4° to 10° lower than outlet water.

Question: When we say "Freon" it can only mean dichlorodifluoromethane.

Answer: False. There are several refrigerants of the "Freon" group. "Freon-11, 12, 21, 113" for example.

Question: When a check valve is used in the suction line of a two-temperature multiple installation it should be used in the suction line of the lower coil temperature fixture.

Answer: True.

Question: An Allen set screw requires the use of a special octagon or eight sided wrench.

Answer: False. A hex or six-sided wrench is required.

Question: If a dog bites into the electric cord of a household refrigerator, liquid may run on the floor.

Answer: True. If it scares him bad enough. (No penalty for any answer. Ask next question to same person.)

Question: To pasteurize milk it is heated to its boiling point and then immediately cooled.

Answer: False. It is only heated to 145° and not the boiling point.

Question: It is impossible to freeze methyl chloride.

Answer: False. Methyl chloride freezes at —144° F.

Question: Aluminum because of its lightness is frequently used for pistons in methyl chloride compressors.

Answer: Aluminum is not used as it rapidly corrodes when a small quantity of moisture is present in CH_3Cl.

Philadelphia Average Price Is $152 For First Quarter

Month	1941 Units Sold	1940 Units Sold	1939 Units Sold	1941% Inc. Or Decrease Over 1940	1941 Retail Value	1940 Retail Value	1941% Inc. Or Decrease Over 1940	1941 Average Price	1940 Average Price
January	5,009	4,257	3,123	+ 17%	$ 748,786	$ 685,501	+ 9%	$149	$161
February	6,818	4,869	3,797	+ 40%	1,031,104	750,862	+ 37%	151	154
March	8,023	6,199	4,826	+ 29%	1,243,965	930,708	+ 33%	155	150
Total	**19,850**	**15,325**	**11,746**	**+ 29%**	**$3,023,855**	**$2,367,071**	**+ 27%**	**$152**	**$155**

Sales By Philadelphia Electric Co.

Month	1941 Units Sold	1940 Units Sold	1939 Units Sold	1941% Inc. Or Decrease Over 1940	1941 Retail Value	1940 Retail Value	1941% Inc. Or Decrease Over 1940	1941 Average Price	1940 Average Price
January	355	104	125	+241%	$ 52,295	$ 18,157	+188%	$147	$174
February	542	537	262	+ 1%	87,977	85,109	+ 3%	162	158
March	811	608	268	+ 33%	138,559	96,575	+ 43%	170	158
Total	**1,708**	**1,249**	**655**	**+ 36%**	**$ 278,831**	**$ 199,841**	**+ 39%**	**$163**	**$160**

Note: Utility sales approximate 8.6% of total sales.
Report covers sales in Philadelphia, Bucks, Montgomery, Delaware, and Chester counties.
Report includes sales of the following makes: Coldspot, Crosley, Frigidaire, Gibson, General Electric, Hotpoint, Kelvinator, Leonard, Norge, Philco, Stewart-Warner, and Westinghouse.

Nema Commercial Sales Gain In March

(Concluded from Page 1, Column 4)

for the period, this year's figure of 14,887 units valued at $1,277,904 comparing with a total of 11,342 units valued at $865,778 in 1940. Shipments to distributors and dealers in the U. S. reached 13,790 units during the month, as compared with 9,799 in March of last year.

Similar increases were recorded in packaged equipment, with bottle beverage coolers leading the field with 8,348 units valued at $827,422, against a 1940 total of 5,957 units valued at $538,448. Ice cream cabinet shipments rose to 6,831 units valued at $1,027,535, compared with a figure for last year of 4,522 units valued at $740,632.

Pressure water cooler shipments amounted to 3,308 units, worth $329,171, against a 1940 total of 1,394 units valued at $137,130. Bottle water cooler shipments were 408 units valued at $28,478, against 241 units with a vlaue of $13,823 last year.

Feb. Showed Biggest Gain In Phila.

(Concluded from Page 1, Column 1)

slight decline from the average of $155 at this period last year. Notable this year, however, is the fact that the average price has shown a steady rise, going from $149 in January to $151 in February and to $155 in March. The opposite was true last year, when the average of $161 in January fell to $154 in February and to $150 in March.

Retail value of sales this year was up 27% over 1940 figures for the first quarter, totaling $3,023,855 as compared with $2,367,071 last year.

Although March, with 8,023 units, was the quarter's best sales month in unit volume, February registered the largest gain over comparable 1940 totals, the 6,818 units reported for this year being 40% higher than the 4,869 units shown for that month last year. January sales topped 5,000 units, to go 17% over the 1940 figure for that month.

Best percentage gain in retail dollar volume also was recorded during February, the total of $1,031,-104 being 37% above the 1940 figure. March dollar volume was 33% above that for 1940, with $1,243,965, and was the first month in which dollar gain outdistanced the advance in unit volume.

Sales by Philadelphia Electric Co. were up 36% during the first quarter, totaling 1,708 units as compared with 1,249 in 1940. Utility sales account for approximately 8.6% of the total retail volume in the area.

Hotpoint 'Mobilizes' For Refrigerator Sales

CHICAGO—The week of May 19 through May 31 has been designated as "National Hotpoint Refrigerator Week," highlight of the company's spring retail campaign, built on the theme "Mobilization for Better Refrigeration."

During the campaign, every Hotpoint retailer who makes the refrigerator quota set by his distributor will be given special recognition in the form of a framed, engraved scroll.

To help Hotpoint retailers cash in on the special week, a quantity of promotion material has been prepared, specially designed to create public interest in the event; build store traffic; and give the dealer local publicity.

Included in the special promotion package are: a 12-piece set of red, white, and blue window and store banners, a thousand special newspaper-type broadsides; mats of two new advertisements, specially prepared for this activity; and a hundred oiled-silk bowl covers, for use as give-away items during the week.

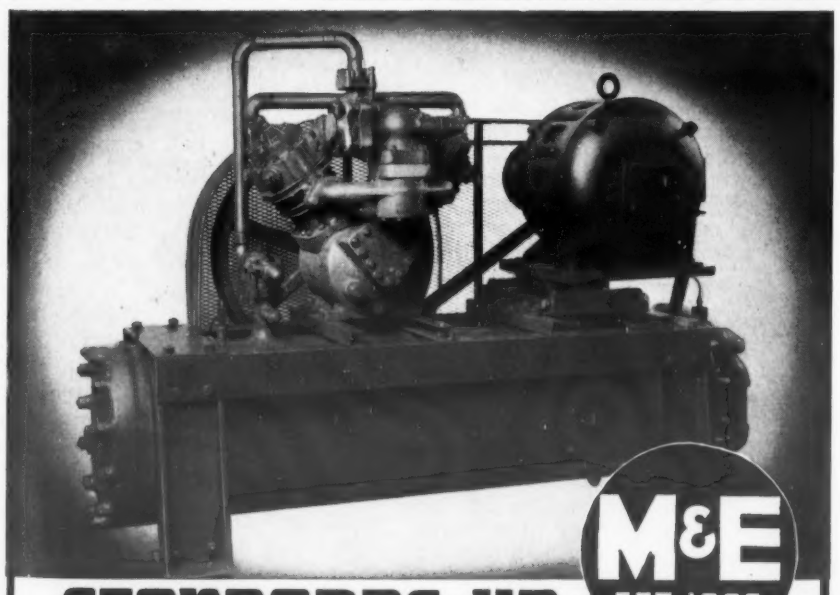
A second "Mobilization Sales Promotion Package" has also been prepared for Hotpoint retailers' spring activities, including a quantity of direct-mail material; a refrigerator door visualizer, wall charts, etc.

To exploit National Hotpoint Refrigerator Week, retailers are expected to "mobilize" complete displays of refrigerators, and "recruit" store traffic with advertising and the free-gift offer. "Open house" showings will be held during the week, with local promotions and special activities to maintain public interest.

Vilter Delivers First 105 MM. Howitzer

MILWAUKEE—First 105 millimeter howitzer turned out by private industry was delivered by the Vilter Mfg. Co., refrigeration manufacturer, to the United States Army here last week. The company is producing more than a million dollars of howitzers and is also making refrigeration units for amy camps, as well as for the peace time trade.

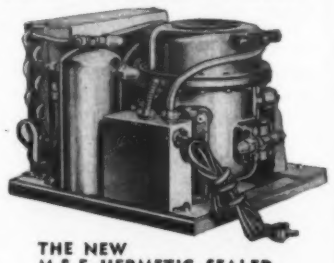
At the presentation ceremony a blank shell was fired from the first howitzer by William O. Vilter, 80-year-old president of the company.



M&E EST. 1866

STANDARDS UP *and* VOLUME UP—

MERCHANT & EVANS CO., has readied its plant for the busiest year in its history—and is better equipped today than ever before to meet all demands. New models, with increased capacities and modernized design, give the manufacturer, assembler and service man one of the most complete and versatile quality compressor lines in America. 16th year of success in every field.



THE NEW M & E HERMETIC SEALED COMPRESSOR
1/3—1/4—1/2 HP

WRITE FOR YOUR COPY
of our attractive
75th Anniversary Catalog

Illustrates and describes compressors from 1/6 to 25HP.—ASRE and NEMA Ratings. Underwriters Label.

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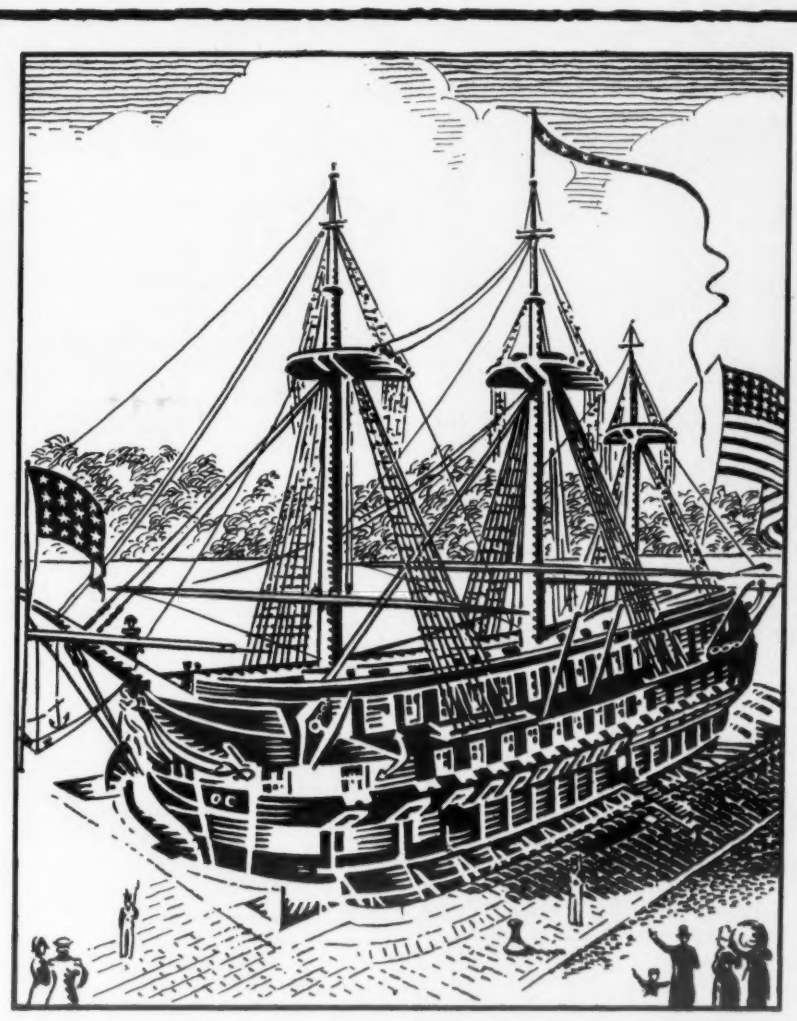


Norfolk Navy Yard, a century ago—Frigate resting in the original stone dry dock, which is still in use today.

VIRGINIA—a name that has earned respect

In naval defense, or in refrigeration, methods change—principles do not.

The Virginia Smelting Company has played an important part in the development of a major industry—refrigeration. Methods have changed—but the same principle still guides us to-day:—

Whatever benefits the entire industry, helps us and you and every member of it.

BUY YOUR KINETIC'S FREON-12* VIA VIRGINIA
*Reg. U. S. Pat. Off.

EXTRA DRY ESOTOO · Methylene Chloride · V-METH-L

VIRGINIA SMELTING CO.
Located at tidewater
WEST NORFOLK, VIRGINIA

V VIRGINIA

Operating and Service Methods For Dry-Expansion Counter Freezers

By Arch Black and Dean C. Seitz

Editor's Note: This is one of a series of articles on the servicing of counter-type ice cream freezers, which have been appearing in the issues of AIR CONDITIONING & REFRIGERATION NEWS in the past few months.

This is the third instalment of the section giving information on Mills counter freezers.

Mills Master Freezers

Mills' Master Freezer line is a later type than that already explained. The refrigeration cycle is shown by Fig. 37. While there is similarity to that already explained, a solenoid valve is used in this system, and the hardening cabinet differs from those used in the line of Mills cabinets already explained.

Refrigeration Cycle Of Master Freezers

The Master Freezer operates with a dry expansion system with a flooded freezer cylinder which is supplied by a thermostatic expansion valve through a ⅜-inch copper tubing liquid line into the bottom of the cylinder similar to that already described. The thermostatic expansion valve bulb is clamped to the rear and on top of the cylinder.

The suction line, instead of being single as in the earlier system explained, consists of two ⅝-inch o.d. copper tubing suction lines coming out of the top of the cylinder. These are connected into a tee at the refrigeration hand control valve that is connected directly to one ¾-inch o.d. copper tubing line leading to the condensing unit. The check valve is paralleled across the expansion valve to allow any excess liquids left in the freezer cylinder after the freezing period to pass back into the receiver for the same purpose as was explained previously.

As in all other ice cream freezers, it is essential that the expansion valve be set properly to obtain the best freezing time. The Mills valve is set as nearly correct as possible before the freezer leaves the factory, but nevertheless, for one reason or another, it requires some kind of an adjustment in the field.

When this is necessary, frost-back, for a self-contained condensing unit, should reach the flare nut which joins the suction line to the compressor. On remote condensing units the frost-back should run along the tubing about 30 inches from main refrigeration hand control valve. Based on the frost-back method, it should be adjusted on freezing the second batch of ice cream whenever possible.

Refrigeration Cycle in Master Cabinet

The Master Cabinet operates on the dry expansion system, as can be noted from Fig. 37. It is supplied by a ⅜-inch o.d. copper tubing liquid line from the receiver into the solenoid valve and thermostatic expansion valve which feeds into a ⅝-inch o.d. copper tubing evaporator coil. This evaporator is fed at the bottom and the suction line is connected at the top, which goes directly to the compressor.

The evaporator is controlled by a thermostatically operated cold control with its bulb placed in the compartment next to the mix compartment and operates the solenoid valve. The thermostatic expansion valve bulb is also placed in the same compartment on the last coil of the evaporator. The evaporator is pumped dry at the end of each cycle.

Centrifugal Blower

Below the evaporator in each compartment there is a 3-inch diameter centrifugal blower connected by a continuous shaft rotating at 2,250 r.p.m. and belt driven by a ⅙-hp. capacitor motor. The blowers draw air in at the top of the evaporator coil, down over the coil, exhausting the cold air at the bottom of the cabinet. By the use of this forced air circulation, faster hardening time is obtained and it is possible to obtain a higher back pressure.

Each compartment has its own shutter control which can be regulated to allow more or less air to be circulated in the compartment and give any desired temperature as indicated on the dial thermometer on the outside of the cabinet.

Explanation of the Controls

Freezer Controls

The main refrigeration hand valve controls the refrigeration to the freezer cylinder. When freezing ice cream be sure that the handle is turned counter-clockwise as far as possible and when through, that the valve is turned off tightly.

Agitator Motor

A time clock is used during the freezing period and the operator sets the clock by turning the handle to the approximate freezing time, and when that time has elapsed a bell rings. This calls to the operator's attention that it is time to check for proper consistency of the ice cream.

There is also an automatic regulator that does not freeze the ice cream. It only maintains the consistency after freezing and during packaging or dispensing from the freezer.

The main refrigeration hand control valve must be turned off when the ice cream reaches the proper consistency.

Master Cabinet Controls

For hardening, a timer switch with a clock mechanism is used which can be wound to any desired period of time ranging from one to 10 hours. When the timer switch is set for rapid hardening, it shunts the thermostatically operated control out of the circuit and allows the blowers to run continuously. The compressor may be cut out if the evaporator is drawn to a pressure equivalent to that at which the low pressure control is set to cut out.

This timer maintains sub-zero temperature during the hardening period and for any given length of time that the clock may be set for. Timer clock must be set for a period of at least seven hours to harden ice cream in cans properly.

There is what is termed a defrost switch which cuts off the refrigerant from the cabinet low side coils, allowing the frost to melt by circulating room temperature air over the low side coils.

The stop and start push button is used only for the purpose of shutting off permanently the refrigeration of the cabinet.

The shutter control, located in each 20-gal. compartment of the cabinet, is moved up or down by the shutter adjustment lever, restricting or increasing the air circulation as may be required to maintain the proper temperature as indicated on an outside panel temperature dial.

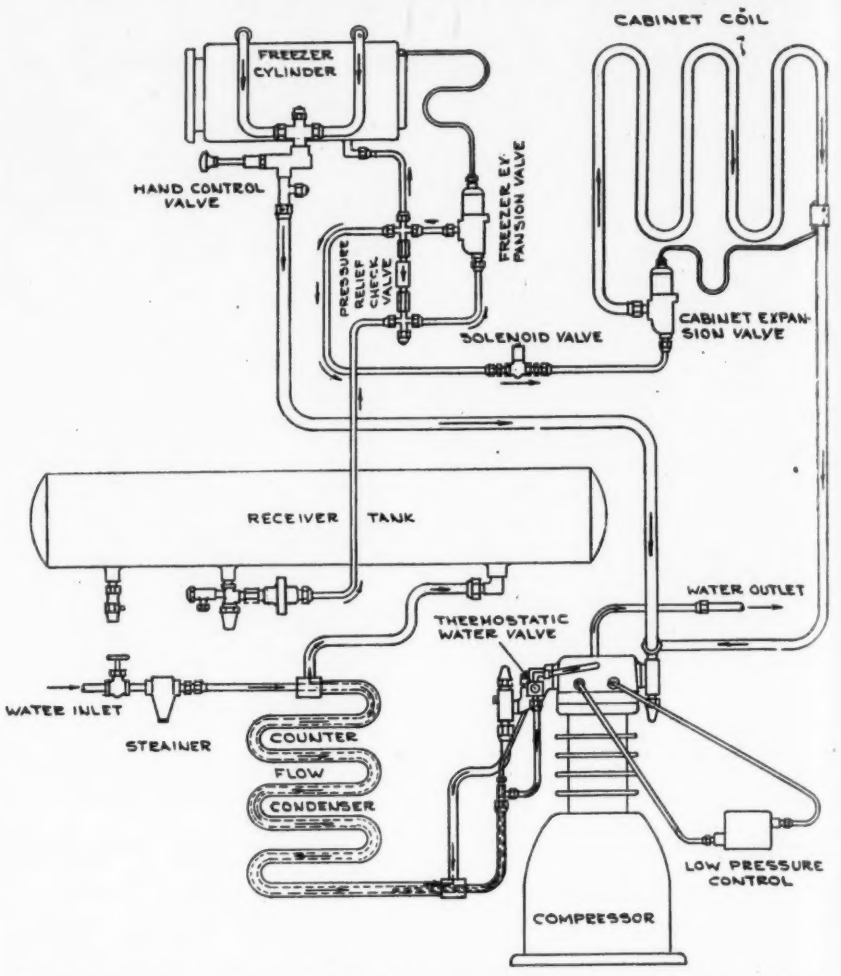
Ice Cream Cabinets Next

Only a few more instalments remain in this series of articles on the servicing of counter-type ice cream freezers, which have been appearing for several months in the weekly issues of the News.

The entire series of articles by Messrs. Black and Seitz will cover all types of low-temperature equipment used by retail concerns, and the next part of the series will discuss servicing of ice cream cabinets. Following that will come a series on frozen foods cabinets.

These articles discuss not only general servicing methods but also give details on specific makes and models.

Fig. 37 - - Mills Master Cabinet Hookup



Diagramed above is the refrigeration system in the Mills Master Cabinet, a dry expansion hookup.

Highside Releases New Thawzone Color Film

NEWARK, N. J.—Highside Chemicals Co. has just released a new color film, "The Story of Thawzone," which will be booked for showings at R. S. E. S. chapter meetings and other refrigeration trade meetings throughout the country.

The movie includes a series of scenes with explanatory titles, one of which shows a close-up of a special receiver in a typical refrigeration unit in which water has become trapped. Drops of water are shown floating on the refrigerant and avoiding removal by conventional means, even though the system is in full operation. This scene is designed to illustrate the manufacturer's claim that Thawzone, which is miscible in refrigerant-oil mixtures, "hunts down" water rather than waiting for water to be brought to it.

Booking and showing of the film will be handled through Virginia Smelting Co., which distributes Thawzone through its jobber outlets.

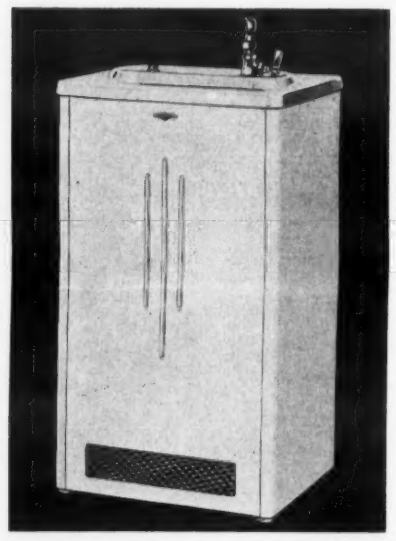
Columbus Store Adds Appliance Dept.

COLUMBUS, Ohio—E. L. Schottenstein department store, located in the south side Steelton area here, has added a new appliance department handling the complete Norge line.

The firm, located at 1887 Parsons Ave., is managed by Leon and Alvin Schottenstein.

for SERVICE EVERYWHERE!

On land and sea . . . in the Army . . . the Navy . . . in offices and factories . . . everywhere . . . "Day & Night" Water Coolers give dependable, economical service. When you install a "Day & Night," you eliminate frequent service and early replacement . . . and these are important factors nowadays in our national defense program.



All types and sizes, from individual cabinet models to large storage systems, with any desired combination of outlets.

MODEL NDU11-3
U. S. NAVY (SPS-770) COOLER, Size 3 (63-C4), Size 10
"DAY & NIGHT" ALSO BUILDS COOLERS TO MEET U. S. ARMY SPECIFICATIONS

Marketed through the Established Refrigeration Trade

DAY AND NIGHT COOLER DIVISION
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2320 EAST EIGHTH STREET
LOS ANGELES, CALIFORNIA
Warehouse Stocks at Convenient Shipping Points

RANCOSTAT Prefers SYLPHON BELLOWS

The Sylphon Bellows brings the durability of metal to many services formerly monopolized by shorter-lived materials. In control apparatus, for example, the Sylphon Bellows is now widely used as thermostat members. Always dependable . . . almost indestructible . . . and widely adaptable in application.

Rancostat, for example, uses Sylphon Bellows to add to the dependable accuracy and enviable reputation of their famous equipment.

Let us tell you more about these remarkably durable, seamless, jointless, all-metal Bellows that are the result of more than 35 years research and development. Ask for Bulletin JO-511.

THE FULTON SYLPHON CO.
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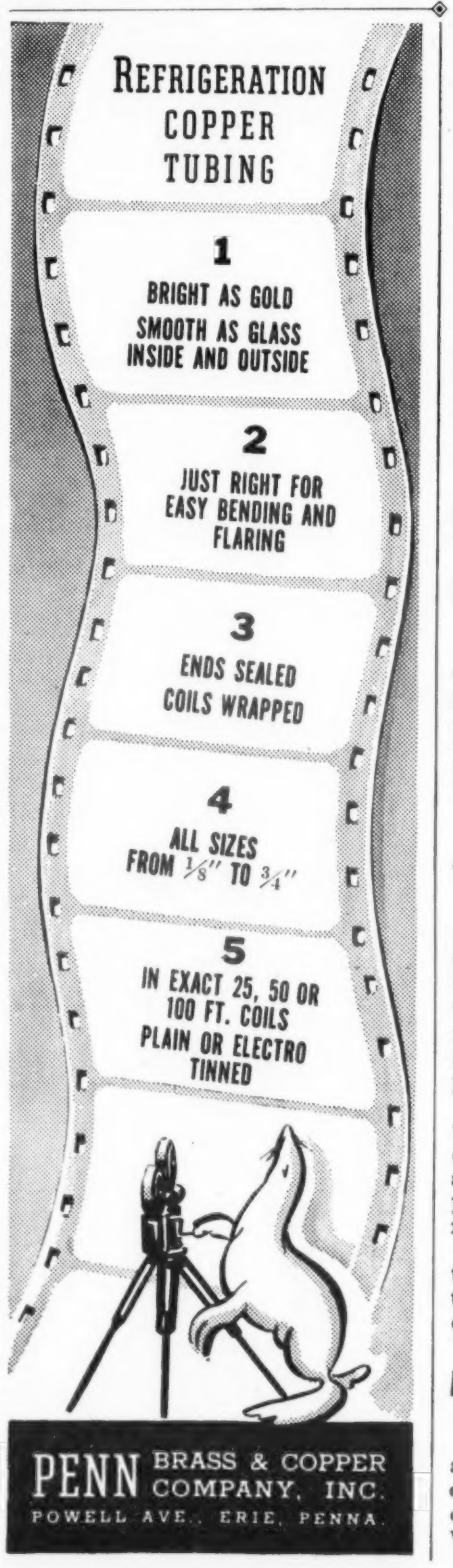
Representatives in All Principal Cities in U. S. A. and in Montreal, Canada and London, England


REFRIGERATION COPPER TUBING
1
BRIGHT AS GOLD SMOOTH AS GLASS INSIDE AND OUTSIDE
2
JUST RIGHT FOR EASY BENDING AND FLARING
3
ENDS SEALED COILS WRAPPED
4
ALL SIZES FROM 1/8" TO 3/4"
5
IN EXACT 25, 50 OR 100 FT. COILS PLAIN OR ELECTRO TINNED

PENN BRASS & COPPER COMPANY, INC.
POWELL AVE., ERIE, PENNA.

Batteries of Small Hermetic Units Used For Locker Plant Refrigeration

Winters Firm Finds Such Systems More Flexible & Reliable

SALT LAKE CITY—Use of a battery of small, hermetically sealed compressors, rather than of one large refrigerating unit, is the cardinal point of the locker plant installation technique developed and practiced by Winters Mfg. & Distributing Co., Westinghouse commercial refrigeration distributor in this area.

The Winters firm installed 27 plants in the past year, according to Jess Crowe, Winters engineer and the man chiefly responsible for the company's small-unit locker plant theory, and in no instance was any machine larger than a ¾-hp. Westinghouse hermetic unit used.

"In the locker room," Mr. Crowe explains, "we match a water defrost coil with each compressor needed for this room. We handle the sharp freeze room in the same way. We use only forced convection coils in all our installations, and have been very successful in maintaining high humidities.

TYPICAL INSTALLATION

"Example of this technique is the plant completed recently for the St. Anthony Food Store at St. Anthony, Ida. In this 365-locker plant we installed four ¾-hp. Westinghouse hermetics and four Recold LT50 water defrost coils for the locker room. These machines were hooked up so as to start and stop intermittently, as needed.

"To handle the sharp freeze room, we installed two ½-hp. Westinghouse hermetic units and two Recold LT50 water defrost coils. For the chill room we installed one ¾-hp. Westinghouse compressor with Recold Supreme coil. Westinghouse Sterilamps were used in this room so that high temperatures and humidities could be maintained.

"In some plants," declares Mr. Crowe, "we have used as many as 16 compressor-coil units, and operating costs have proved to be about half of what they would have been if conventional type equipment with only one compressor had been used to do the same job.

"We now have plans on our drawing table for seven plants, one of 2,000-locker capacity. The balanced coil and compressor system will be used in all of these, and none of the compressors will be larger than ¾-hp. Under this system, only interruption of the power supply can cause complete shut-down of the plant.

"We have kept close check on the operating time of compressors cooling the locker rooms, and in one instance we found that a locker room with 300 lockers required only one ¾-hp. compressor, cycling normally, to maintain a temperature of 0° F. all winter long.

"Use of the water defrost coils makes defrosting unnecessary more than once a week. In fact, several of the installations we have made require defrosting only once every two weeks. And the defrosting operation requires only about two or three minutes for each coil."

Among the locker plants which have been built in this territory by the Winters organization are: Rudd's Locker Plant, Sandy, Utah; Messervy's Market, Provo, Utah; Hyrum Cold Storage Locker Co., Hyrum, Utah—(this was a re-building job); Menan Co-op Supply Co., Menan, Ida.; Hunter's Market, Ririe, Ida.; Skelton's Market, Rexberg, Ida.

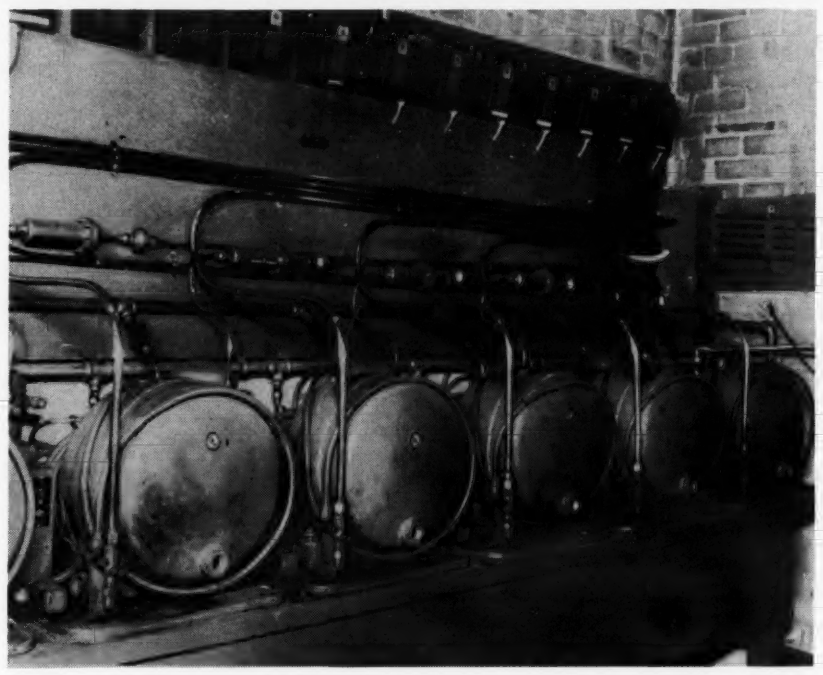
"In making a thorough survey of locker plants throughout the country," Mr. Crowe reports, "we have found that most failures are due to improper equipment or to unsightly appearance. These are conditions which we try to avoid when we build a plant.

COMPLETE RESPONSIBILITY

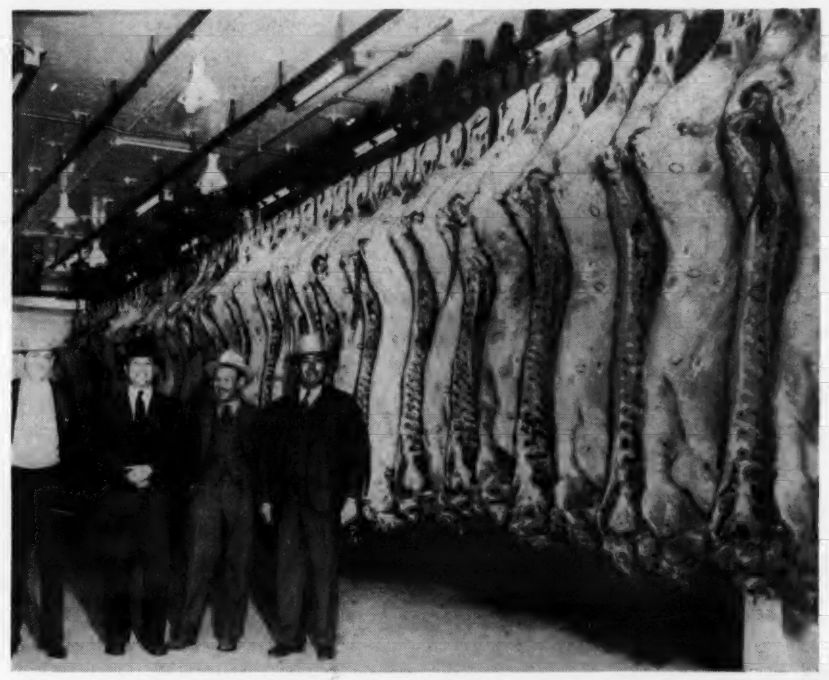
"Because we do not wish to be associated with any plant that might turn into a failure, we will not agree to handle any job that is not completely designed by our organization, and for which we do not draw up the specifications and handle the actual installation of equipment. We want no divided responsibility as to performance of the equipment.

"In the first place, we will not consider building or equipping a plant of less than 300 lockers for anyone, for we do not believe that a smaller plant can be operated as a paying proposition for the owner.

"Also, we will not make an installation without these requirements: steel lockers, process room, sharp-freeze room, chill room, and pickle room. Other features which may not be absolutely necessary but which we nevertheless like to include in our plants are: meat tracks and scales; Westinghouse Sterilamps in chill, pickle, and aging rooms; vapor-proof electrical work; meat curing facilities; provisions for blanching vegetables; and facilities for the retailing of fresh meats and frozen foods."



Bank of compressors in a typical Winters installation, showing how the individual hermetic units are controlled by separate cut-out switches.



Sterilamps are used in the chill and aging rooms. Elwood G. Winters, manager of Winters Mfg. & Distributing Co., is second from left. Next is Jess Crowe, Winters engineer who developed the multiple-system plan.

Westinghouse display case keeps cut meats in good condition in the plant's retail salesroom. Note the locker key rack behind the attendant.

Locker Briefs

RICE LAKE, WIS.

RICE LAKE, Wis.—Theft of two half hogs from Balcomb's Frozen Food Lockers here was reported recently by Mr. Balcomb. Commenting on the robbery, Mr. Balcomb made the request that any other thieves burglarizing his plant at least close the cold storage doors when they leave.

DALLAS, TEX.

DALLAS, Tex.—Contract for building and equipping the Lufkin Frozen Food Bank, a 420-locker frozen food storage plant, has been let to Southern Refrigeration Co. by Dr. B. E. Trigg of Dallas, builder of the plant. Carrier refrigeration equipment will be used.

SANTA ANA, CALIF.

SANTA ANA, Calif.—A refrigerated locker plant of stucco construction is being erected here for John Sauers, of Tustin, Calif.

OMRO, WIS.

OMRO, Wis.—Cole Locker Plant, started a year ago as a sideline for a fox farm, now has all 150 lockers rented and plans an addition to its plant. Adeline M. Cole is proprietor.

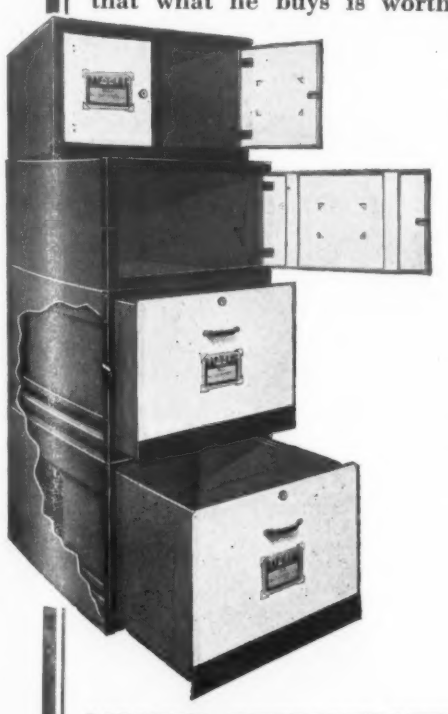
The Price of Reputation

REPUTATION is never completely earned—it is always being earned. It is a reward—but in a much more profound sense it is a continuing responsibility.

That which has been accorded a good reputation is forever forbidden to drop below its own best. It must ceaselessly strive for higher standards. From him who gives much—much is forever after expected.

There is no greater responsibility than the responsibility which reputation compels all of us to assume.

The man who builds and the man who buys are both beneficiaries of a good reputation. To the one it is a continuous spur and incentive—to the other the strongest of guarantees that what he buys is worthy.



There is an inflexible law which binds men who build well, to go on building well. They are doubly bound to keep faith.

Reputation is an insurance which infallibly protects those whose reason for buying is that they believe in a thing and its maker.

MASTER
will always keep faith

Not only has MASTER led in outstanding improvements, but it will continue to build better and better.

Write Today for details on the *Masterbuilt* three main types of Food Storage Lockers in 30 different sizes—there's a type and size to fit your particular requirements. If you want up-to-the-minute equipment, investigate MASTER.

Endorsed and sold only through distributors of refrigeration and insulation.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main St. Sioux City, Iowa

Over 200,000 Masterbuilt Lockers in Use

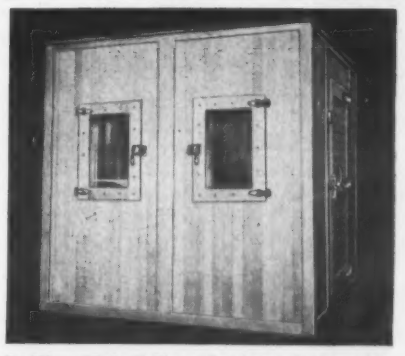
"STORAGE" that Meets All 4 Requirements

1-Necessary Capacity
2-Low First Cost
3-Low Cost Operation
4-Very Low Installation Expense

Install Rō-Way Sectional Coolers for Storage of Vegetables, Fruits, Meats and Beverages

Ro-Way "Walk-In" Sectional Coolers *pay you a good profit* and give your customers efficient and economical storage. Suitable for electrical or mechanical refrigeration. Offer maximum capacity with a minimum of investment and operating cost.

Ceilings, floors and walls are 5⅛ or 5½" thick and consist of inside and outside layers of tongued and grooved yellow Douglas Fir, lined with heavy insulating paper and filled with moisture treated Granulated Cork. Overlapping type doors are insulated same as walls. Door hardware is cadmium plated.



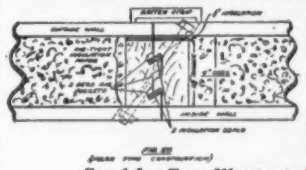
Ro-Way "Polar" Type Sectional Cooler with "Walk-In" Door and 2 "Reach-In" Windows.

2 TYPES

"Cub" Type for low headroom basements
"Polar" Type in several heights for general use

"Polar" Type has ⅜" thicker ceiling, floor and walls with ⅜" thicker insulation of Granulated Cork. Both Types are made in complete sections, which may be easily and quickly bolted together.

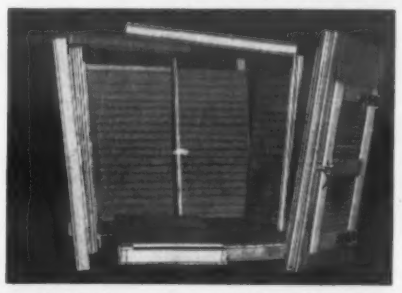
Each section is plainly marked with number corresponding to diagram furnished with each cooler. No skilled labor is required.



● Note how double-interlocking, double-insulated joints with 2 insulation seals make an airtight seal where sections are connected.

Send for Free Illustrated Folder

ROWE MANUFACTURING CO.
2019 Adams Street • Galesburg, Ill., U. S. A.



Easily Taken Through Small Doors —Quickly Set Up

No Section is more than 4 ft. wide for easy passage through small doorways, and inaccessible places. All Sections numbered and easily bolted together.

Mail This Coupon for Illustrated Folder of Rō-Way "WALK-IN" COOLERS

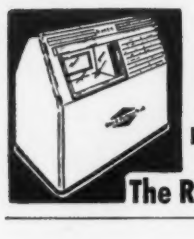
ROWE MANUFACTURING CO.,
2019 Adams St., Galesburg, Ill.

Gentlemen: Without obligation, send me Illustrated Folder of Ro-Way "Walk-In" Coolers.

Name.....

Address.....

City.....State.....



CASH IN WITH REOL
QUICK FROZEN FOOD DISPLAYER
Write to
The REOL CO. Hearst Tower Baltimore, Md.

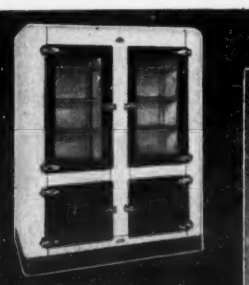
Butler Bros. Now Handling Westinghouse Line

GOLDSBORO, N. C.—Butler Bros., former Frigidaire dealer, is now handling the Westinghouse appliance line.

WELDED STEEL

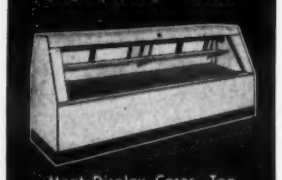
THE KOCH LINE IS *Complete*
Walk-In Coolers, Commercial Refrigerators
and all types of
Display Cases
Koch does not manufacture or sell condensing units. Koch distributors therefore furnish the units they sell.
Write Today for Information on PROFIT POSSIBILITIES
KOCH REFRIGERATORS NORTH KANSAS CITY, MO.

CLIMB ABOARD FOR BIGGER PROFITS!



Tyler Reach-Ins. Many sizes and door arrangements.

Refrigerated Vegetable Display. 6 or 9 ft. sizes.



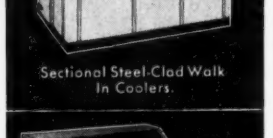
Meat Display Cases. Top Display and Double Duty.

★ There's still time to tie up with Tyler—and really go places in '41. For this complete line is designed and built to fill every need—priced right. Buyers appreciate the extra value, too. Climb aboard now and get your share of profits!

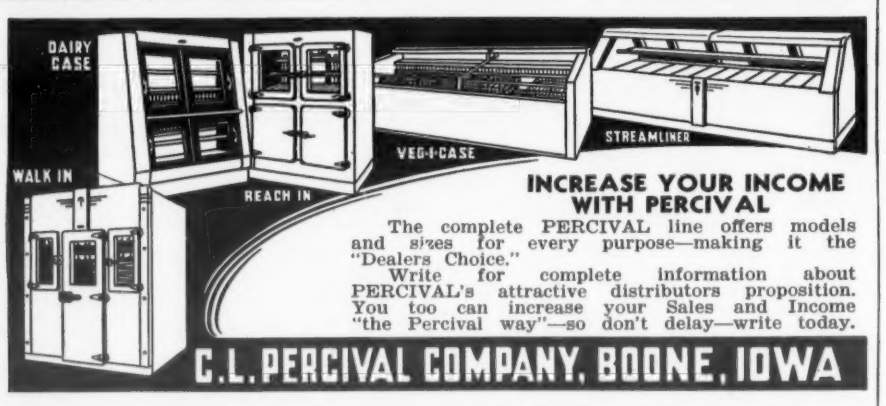
TYLER FIXTURE CORPORATION
Dept. R-3, Niles, Michigan

TYLER DEALERS ARE MAKING MONEY!

Sectional Steel-Clad Walk In Coolers.



Tyler Dry-Kold Beverage Cooler and Draw-Kold Beer Dispenser.



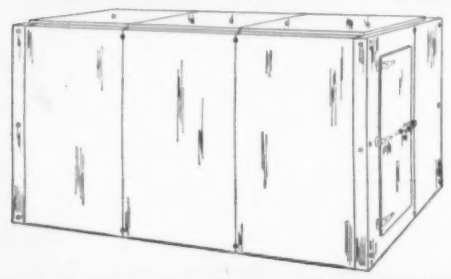
INCREASE YOUR INCOME WITH PERCIVAL

The complete PERCIVAL line offers models and sizes for every purpose—making it the "Dealers Choice."

Write for complete information about PERCIVAL's attractive distributors proposition. You too can increase your Sales and Income "the Percival way"—so don't delay—write today.

C.L. PERCIVAL COMPANY, BOONE, IOWA

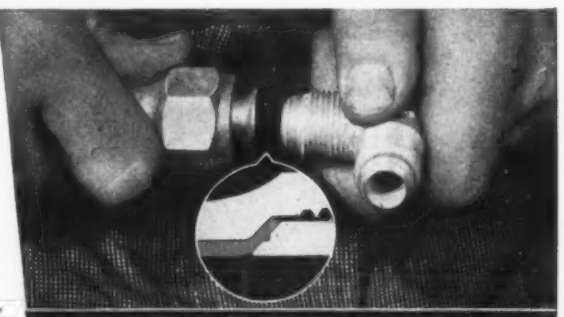
'ARMOR-CLAD' WALK-IN COOLER



★ALL STEEL EXTERIOR
★LOW IN COST
(Due to volume production)
★REAL FLEXIBILITY
(Easily enlarged by adding sections)
★EASY TO ERECT
(2 unskilled workmen sufficient)
★SMALL STANDARD-SIZE SECTIONS
(Portable and easy to handle)
★UNLIMITED RANGE OF SIZES
★PROMPT SHIPMENT

FOGEL REFRIGERATOR COMPANY Philadelphia, Penna. Since 1899

To Make a tight connection that will STAY tight
USE IMPERIAL TRIPLE SEAL FITTINGS
THE flare extrudes into groove making a leak proof joint even when seat has been badly nicked or marred.
Ask your Jobber about Triple Seal Fittings
IMPERIAL BRASS MFG. CO. 565 S. Racine Ave., Chicago



IMPERIAL VALVES • FITTINGS • TOOLS CHARGING LINES • FLOATS STRAINERS • DEHYDRATORS

Where Air Conditioning Was Installed On Florida Power Co. Lines In 1940

(Data compiled by Florida Power & Light Co., Miami, Fla.)

Name and Address	Make of Equipment	Tonnage	Hp.
BANKS			
Miami Ind. Bank, Miami	Carrier	10.0	12.5
Dade Federal Savings & Loan Bank, Miami	General Electric	10.0	12.5
First National Bank, Miami	Carrier	25.0	30.5
First National Bank, Miami	Carrier	10.0	11.7
P. B. National Bank, West Palm Beach	Frigidaire	15.0	18.0
BARS AND NIGHT CLUBS			
Club Bali, Inc., Miami	York	30.0	40.0
M. Clarke Bar, Miami	Curtis	5.0	6.5
Don Lanning Bar, Miami	Novis Coolaire	1.5	2.5
Esquire Bar, Inc., Miami	Carrier	25.0	30.0
Pete Clifford Night Club, Miami Beach	General Electric	15.0	17.0
Cromwell Hotel Bar, Miami Beach	Frigidaire	15.0	18.0
Brook Club, Night Club, Miami Beach	York	30.0	36.0
Tradewinds, Inc. Bar, Ft. Lauderdale	Frigidaire	3.0	3.5
Clifton Corp., Hotel Bar, Ft. Lauderdale	General Electric	3.0	3.5
FUNERAL HOMES			
Haigh-Brooks, Daytona Beach	Nomis	0.8	0.8
H. I. Bess, Miami	York	2.3	3.5
C. D. Van Orsdell, Miami	Carrier	5.0	7.0
D. Lithgow, Miami	Trane	3.0	4.5
HOSPITALS			
Miami Retreat, Hospital Office, Miami	Fairbanks-Morse	4.0	5.0
Good Samaritan Hospital, W. Palm Beach	Frigidaire	15.0	18.0
HOTELS			
Marion Hotel Room, Palatka	Westinghouse	0.5	0.5
Boulevard Operating Co. Hotel, Miami	Fairbanks-Morse	25.0	28.0
Arkwin Corp. Hotel, Miami	Carrier	25.0	30.0
OFFICES			
C. W. Fain, Daytona Beach	Nomis	0.8	0.8
Mather Barnes Furniture, Daytona Beach	Philco-York	0.8	0.8
Kingston Theater Office, Daytona Beach	Nomis	1.5	1.6
H. Wilcox, Daytona Beach	Nomis	0.8	0.8
C. Reese, Daytona Beach	Nomis	2.3	2.4
Industrial Bank Office, Daytona Beach	York	1.5	1.6
L. J. Day Bulk Plt. Office, Live Oak	Philco	0.5	0.5
Dr. J. B. Brinson, Monticello	York	2.5	2.5
W. V. Stephenson, Palatka	Philco-York	0.5	0.5
Dr. McDaniel, Sanford	Westinghouse	0.8	0.8
Mather Furniture Co. Office, Sanford	Philco-York	0.5	0.5
Pittsburgh Test. Laboratory Office, Miami	York	0.5	0.5
American Apl. Co. Office, Miami	Pleasantaire	0.8	1.0
Dr. J. H. Beckwith, Miami	Carrier	0.5	0.5
E. B. Elliott Co., Miami	York	3.0	4.5
Maxwell Co., Miami	Westinghouse	5.0	6.5
Maxwell Co., Miami	Westinghouse	0.5	0.7
Maxwell Co., Miami	Westinghouse	0.8	1.0
Hanlon Plumbing, Miami	Airtemp	0.5	0.7
Howard Preserving, Miami	Fairbanks-Morse	0.8	1.0
Aufford-Kelly Co., Miami	Frigidaire	0.8	1.0
Dr. J. H. Beckwith, Miami	Carrier	0.8	1.0
Ingman Motors, Miami	Westinghouse	0.8	1.0
Larkin Motor Co., Miami	General Electric	0.8	1.0
So. Liquor District, Miami	Carrier	3.0	4.0
Christopher Motors, Miami	Delco-Frigidaire	1.5	2.0
Southern Bell Telephone, Miami	York	15.0	23.0
O. V. Scott, Miami	Westinghouse	1.0	1.5
Bill Frey, Inc., Miami	Mills Novelty	10.0	12.5
Dade Finance Co., Miami	Copeland	1.0	1.5
Eli Witt Cigar, Miami	Carrier	1.0	1.5
Dr. C. Perry, Miami	Carrier	3.0	4.5
Lincoln Tower, Miami Beach	Carrier	30.0	31.5
Deauville Hotel, Miami Beach	Philco-York	5.0	7.0
Lamont Cleaners, Miami Beach	Philco-York	0.8	0.8
Taradash Office, Miami Beach	Am. Appl. Co.	0.8	0.8
Milner Office, Miami Beach	Frigidaire	0.8	0.8
Rank Office, Miami Beach	Frigidaire	0.8	0.8
Dr. Roth, Miami Beach	Puro-Filter	0.8	0.8
State Road Dept., Ft. Lauderdale	Trane	22.0	26.0
B. Elliott, Pahokee, Belle Glade	Aprocs	0.3	0.3
Olaf Boe, Pahokee, Belle Glade	Home Made	0.3	0.3
Stuart News Office, Stuart	Wesco	0.3	0.3
S. S. Hospital Office, Sarasota	Philco-York	0.5	0.5
Mather Furniture Co. Office, Bradenton	Philco-York	0.5	0.5
C. R. Crandall Real Estate, W. Palm Beach	York	1.0	1.0
RESTAURANTS			
Edgar Manvey, St. Augustine	Chrysler	3.0	3.5
McAllister Hotel Coffee Shop, Miami	York	10.0	12.5
H. G. Sease Restaurant, Miami	Trane	6.0	7.5
Randys, Inc., Miami	Van Ref.	1.5	2.0
McAllister Soda Shop Lunch, Miami	Delco-Frigidaire	3.0	4.5
7 Seas Restaurant, Miami	Carrier	50.0	65.0
Hoffman Cafeteria, Miami Beach	York	40.0	50.0
Werts Restaurant, West Palm Beach	York	25.0	30.0
STORES, CLOTHING			
Dobrows Men's Shop, Daytona Beach	Carrier	3.5	3.5
Hartley's, Inc., Dress Shop, Miami	Carrier	6.0	7.5
M. Sybil Dress Shop, Miami	Chrysler	6.0	7.5
W. Beatus Hat Shop, Miami	Curtis	3.0	3.5
Princely Shops, Miami	Carrier	10.0	12.5
Eleanors Dress Shop, Miami	York	5.0	7.5
Capitol Dress Shop, Miami	General Electric	5.0	6.5
Jay Thorpe Dress Shop, Miami Beach	York	5.0	7.0
Sasson Linens, Miami Beach	Chrysler	3.0	3.5
Daniel's Store, Coral Gables	Carrier	5.0	7.5
STORES, DEPARTMENT			
Richards Department Store, Miami Beach	York	40.0	50.0
Montgomery Ward & Co., W. Palm Beach	York	160.0	198.0
J. C. Penney Co., West Palm Beach	Carrier	30.0	36.0
STORES, DRUG			
S. L. Padgett Drug Store, St. Augustine	Carrier	6.0	5.5
Prairie Drugs, Miami	Carrier	15.0	18.0
Lakeside Drug Store, Miami Beach	York	7.5	9.0
Royal Palm Pharmacy, Ft. Myers	Westinghouse	5.0	6.0
Breedings Drug Store, Coral Gables	Carrier	10.0	12.0
STORES, JEWELRY			
Diamond Jewelry, Miami	York	3.0	4.5
Mays Jewelry Store, Miami	York	2.8	3.5
STORES, SHOE			
Slaters Boot Shop, Miami	Carrier	3.0	4.5
Slaters Boot Shop, Miami	Curtis	5.0	6.5
Melville Shoe Co., Miami	Carrier	5.0	8.0
Bond Shoe Store, Miami	General Electric	3.0	4.5
Ansonia Shoe Store, Miami Beach	Frigidaire	10.0	16.0
STORES, MISCELLANEOUS			
L. Church Smoke Shop, Miami	Kelvinator	3.0	3.3
J. B. Wilbar Smoke Shop, Miami	Cool-Aire	0.8	1.0
W. P. Rieder Retail Store, Miami	Cool-Aire	0.8	1.0
Kohler & Tucker Retail Store, Miami	Kelvinator	3.0	3.3
Fostor Reynolds Store, Miami	Carrier	7.5	10.0
C. Weinkle Grocery Store, Miami	Carrier	25.0	26.0
H. E. Hubbard Store, Miami	Carrier	3.0	4.5
F. N. Holley 5-10¢ Store, Miami	Carrier	15.0	20.0
Lincoln Tower Store, Miami Beach	Carrier	400.0	420.0
John L. Patten, Office & Store, Miami Beach	Carrier	30.0	34.5
MISCELLANEOUS COMMERCIAL			
C. E. Ellzey Electrical Appliances, Daytona Beach	Philco-York	5.0	5.0
Mather Barnes, Storage Vault, Daytona B.	Philco-York	1.0	1.0
Florida Motor Lines Depot, Miami	Carrier	15.0	19.0
P. E. Ried Beauty Shop, Miami	Westinghouse	0.5	0.5
P. E. Ried Beauty Shop, Miami	Perfectionaire	0.5	0.5
P. E. Ried Beauty Shop, Miami	Room Kool	0.3	0.3
Revelation Church Classroom, Miami	York	1.0	1.5
Tooly-Myron Studio, Miami	Frigidaire	3.8	4.5
Southern Bell Telephone Exchange, Miami	York	15.0	21.5

(Concluded on Page 39, Column 2)

... At Your Beck and Call

THE MAN YOU NEED!

Call on U.E.I. for TRAINED MEN—installation and service men to this industry. U.E.I. graduates are trained as you want them trained for all positions requiring technical knowledge or mechanical ability. Our Free Employment Service is nationwide, personal, prompt. Try it.

UTILITIES ENGINEERING INSTITUTE
Belden & Wayne Aves. (Est. 1927) Chicago, Illinois

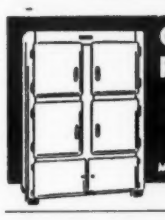
Fulco ADJUSTABLE REFRIGERATOR COVERS

Fit any refrigerator. Excellent quality covering, well padded and reinforced at edges. Reduce loss from damage in transit to a minimum by full equipment with FULCO Adjustable Refrigerator Covers.
FULTON BAG & COTTON MILLS
Manufacturers since 1870
Atlanta St. Louis Dallas New Orleans Minneapolis New York Kansas City, Kan.

3 CATALOGS IN 1
1. Hermetic Units Compressors—Parts
2. Parts-Compressors-Evaporators Frigidaire—Kelvinator—Norge General Electric and etc.
3. Complete Line Refrigeration Parts—Tools—Supplies
Write for Your Copy on Your Letterhead
SERVICE PARTS CO.
1101-03 N. 24th Ave. Melrose Park, Ill.

Dealers Wanted for Midwestern and Southern States
CAMPBELL REFRIGERATOR CO. Milwaukee, Wis.

CHARGED IN DAVISON'S SILICA GEL WITH OUT
Specify DRYERS THAT BEAR THIS LABEL
Ask your Jobber



COMMERCIAL REFRIGERATORS
World's most complete line of commercial cabinets—13 to 84 cu. ft. capacity.
MIDWEST MFG. COMPANY • GALESBURG, ILL.

BUY ACME
FINNED COILS
JACKSON ACME INDUSTRIES MICH.

ENJOY LIFE AT ITS BEST-IN KANSAS CITY MISSOURI

CONTINENTAL

Central Screw Introduces New Fastening Devices

CHICAGO—New line of "Prestole" fastening devices, claiming speedier production and more rigid assemblies in their application, has been introduced by Central Screw Co. here.

Formed by patented press operations in cold-rolled steel, they embody a resilient conically formed and scientifically slit thread, which, it is claimed, "invites" the entrance of a screw of matching thread.

1940 Florida Cooling Installations

(Concluded from Page 38, Column 4)

Name and Address	Make of Equipment	Tonnage	Hp.
MISCELLANEOUS COMMERCIAL			
W. Harrison Photo Laboratory, Miami....	Kelvinator	4.0	5.5
A. Sallinger, Candy Manufacturing, Miami.	Carrier	3.0	4.5
Pinto Fur Storage, Miami Beach.....	Carrier	1.5	2.0
Lowry Electric Co., Coral Gables.....	Carrier	1.5	1.5
Robert R. Shanley Bowling Alley, Sarasota.	York	5.5	5.8
THEATERS			
Boulevard Theater, Miami	Carrier	60.0	75.0
Dade Theater, Miami	Carrier	60.0	70.0
Paramount Enter. Theater, Miami Beach..	Carrier	120.0	139.7
RESIDENCES			
Hollis Bottomley, Melbourne	Gale Room Cooler	0.3	0.3
L. R. Raney, Monticello	York	0.5	0.5
C. L. Morrison, Lake City	Westinghouse	0.3	0.3
D. E. White, Sanford	Westinghouse	0.5	0.5
Van Hoye, Sanford	Westinghouse	0.5	0.5
Dr. Tolar, Sanford	Philco-York	0.5	0.5
C. L. Swinney, Sanford	Philco-York	0.5	0.5
Byron Miller, Miami Beach	Carrier	2.0	2.5
C. Floyd, Miami Beach	Frigidaire	4.0	4.0
A. C. Downey, Miami Beach	Frigidaire	2.0	2.0
H. Ryan, Miami Beach	Frigidaire	1.0	1.0
S. Haber, Miami Beach	Westinghouse	1.0	1.0
Arkay Operating Co. (Apt.), Miami Beach..	Frigidaire	0.8	0.8
L. Wall, Miami Beach	Frigidaire	3.0	3.0
A. Orovitz (Apartment), Miami Beach....	Frigidaire	0.8	0.8
A. Magil, Miami Beach	Puro-Filter	0.8	0.8
Bert Sheer, Miami Beach	Frigidaire	0.8	0.8
Cal Gimble, Miami Beach	Frigidaire	0.8	0.8
Sidney Wien, Miami Beach	Frigidaire	0.8	0.8
J. G. Woods, Miami Beach	General Electric	3.0	3.0
Charles Morehead, Miami Beach	Westinghouse	0.8	0.8
Johnston, Miami Beach	General Electric	0.8	0.8
Knight, Miami Beach	General Electric	5.0	5.0
Barnes, Miami Beach	General Electric	5.0	5.0
Bugle, Miami Beach	Am. Appl. Co.	0.8	0.8
Larrimore, Miami Beach	Frigidaire	0.8	0.8
Moher, Miami Beach	Frigidaire	0.8	0.8
Hodgkins, Miami Beach	Frigidaire	0.8	0.8
Wall, Miami Beach	Frigidaire	5.0	5.0
Benitoa, Miami Beach	Frigidaire	0.8	0.8
R. B. Adams (Apartments), Miami Beach..	Am. Appl. Co.	0.8	0.8
Mrs. Francis Finkle, Coral Gables.....	Carrier	2.3	2.3
W. G. Hull, Pahokee, Belle Glade.....	Philco-York	0.5	0.5
H. Stein, Pahokee, Belle Glade	Philco-York	0.3	0.3
A. O. Walker, Pahokee, Belle Glade.....	Frigidaire	0.3	0.3
B. W. Hendrickson, Bradenton	Frigidaire	1.6	1.6
J. S. Gillintine, Ft. Myers	Philco	0.8	0.8

Efficient, sturdy and economical. Provides safer handling and thorough protection of refrigerators. Pad and harness are separate units and both adjustable to practically all styles and sizes of cabinets.

Adjustable Pad $10.00 each

Adjustable Harness $6.50 each f.o.b. Chicago. Lettering on pad at only $1.00 per order extra.

Write for latest folder and prices on pads for refrigerators, washers, ironers, ranges, radios, etc.

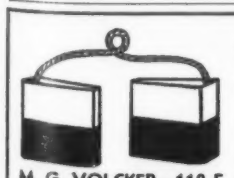
BEARSE MANUFACTURING COMPANY
INCORPORATED 1921
3815-3825 Cortland Street, Chicago, Illinois

KEROTEST
REGISTERED U.S. PAT. OFF.
Valves and Fittings
The Standard of the Industry
Kerotest Manufacturing Co.
Pittsburgh, Pa.

Suspended Type **COMFORT COOLERS**
1 to 3 TON CAPACITY
Silent • Efficient • Attractive
KRAMER-TRENTON CO.
TRENTON, N. J.

U. S. GOVERNMENT
Specification
Filtrine
Cafeteria Coolers
Filtrine Mfg. Co., Brooklyn

Use CHICAGO SEALS
for seal replacements
A complete line in all sizes
CHICAGO SEAL CO.
20 North Wacker Dr., Chicago


IT WILL PAY.
GET OUR PROPOSITION ON CARBON BRUSHES
M. G. VOLCKER - 112 E. 19 ST.-NEW YORK

GALE COMPRESSORS

Single and twin cylinder units. Engineered and manufactured to highest standards. Write
GALE PRODUCTS
1635 Monmouth, Galesburg, Ill.

FOR BETTER SATISFIED CUSTOMERS USE—
AIR-MAZE
Permanent Air-Filter Panels
AIR-MAZE CORP. CLEVELAND, OHIO

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, $2.00, additional words, four cents each. Three consecutive insertions, $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

REQUIRE competent junior service mechanics for employment in tropics. Splendid opportunity for aggressive young men seeking experience and advancement. Foreign language not required. Write Box 1331, Air Conditioning & Refrigeration News.

THREE strong territories are open in Ohio, Indiana, and Pennsylvania for men who can sell a unit system of ventilation to plants, offices, stores, homes, 12 months in the year. Must be 40 to 60 years old with proven record of personal sales. Our men build their own business, make money. Home nights. No franchise to sell, no samples to buy, nothing to invest. We want your ability, not your money. We have lost only one man in two years. If you'd like to explore this further, write us about yourself and your experience. Confidential, of course. Address Box 3925, Shaker Square Station, Cleveland, Ohio.

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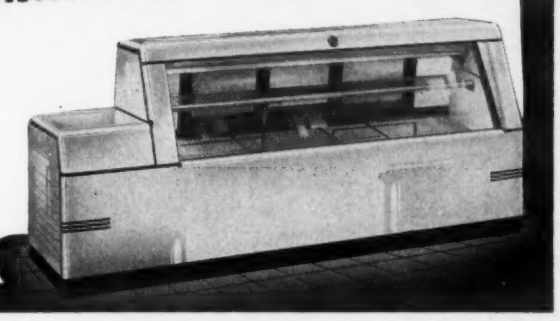
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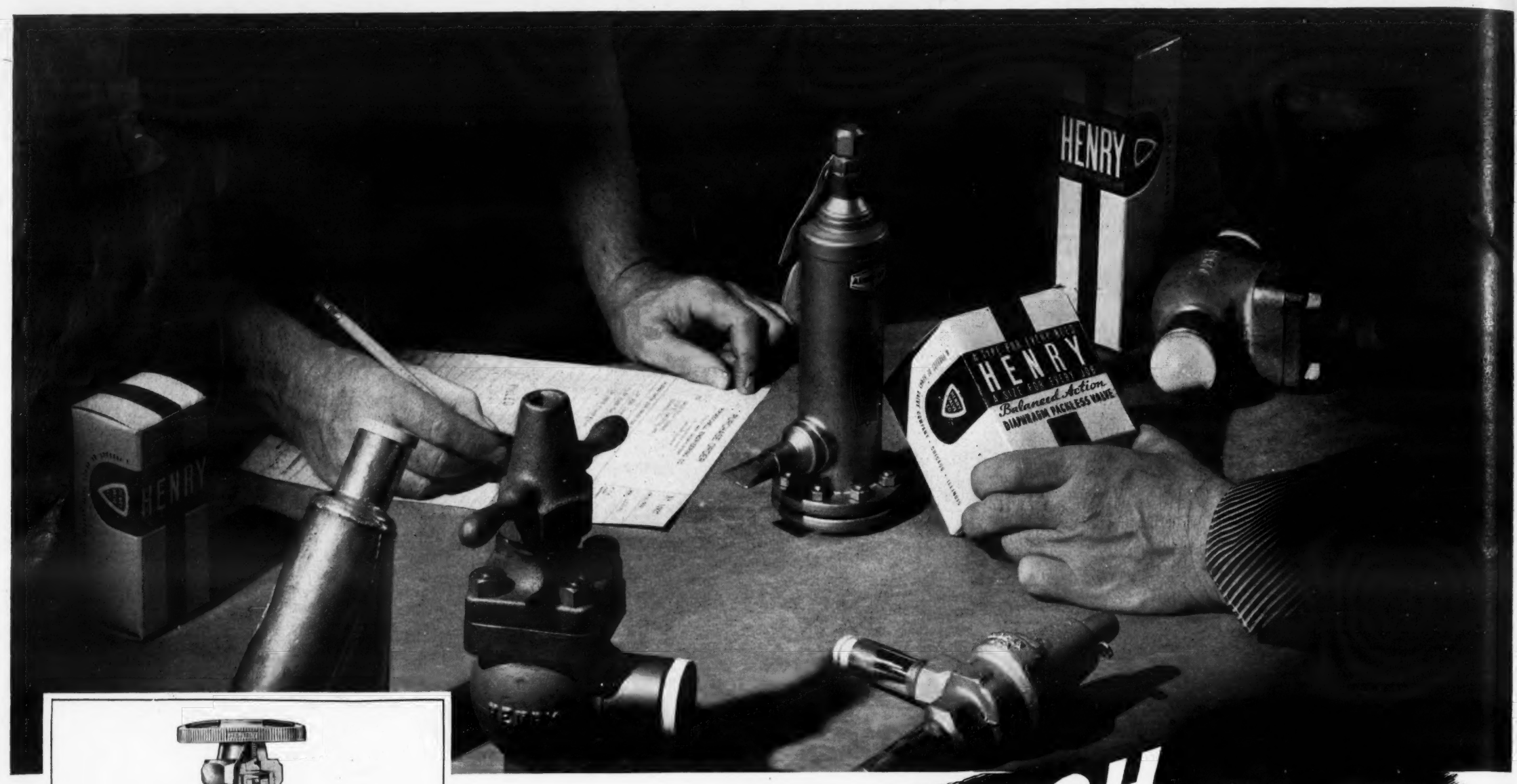
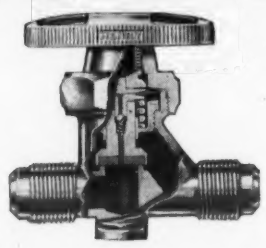


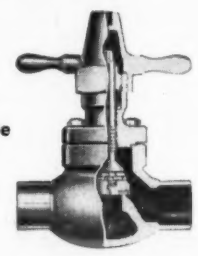


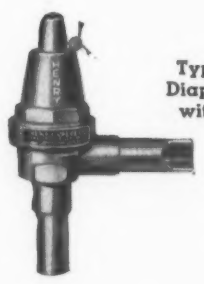
Balanced Action Diaphragm Valve

Type 706 Large Capacity Inexpensive Dryer

Type 741 Dehydrator with Refill Plug and Dispersion Tube

Type 203 Wing Cap Non-Ferrous Alloy Valve





Type 542 Snap Action Diaphragm Relief Valve with Solder Extension Connections

Type 522 Relief Valve for Small Units

Type 756 Cartridge Dehydrator with Side Outlet

Type 895 "Y" Strainer

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